INDUSTRIAL MEDICINE AND SURGERY

Volume 23 AUGUST 1954 Number 8

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*Choy, D. S. J.: Clinical trials of a new plastic dressing for burns and surgical wounds. A.M.A. Arch. Surg. 68:33-43 (Jan.) 1954

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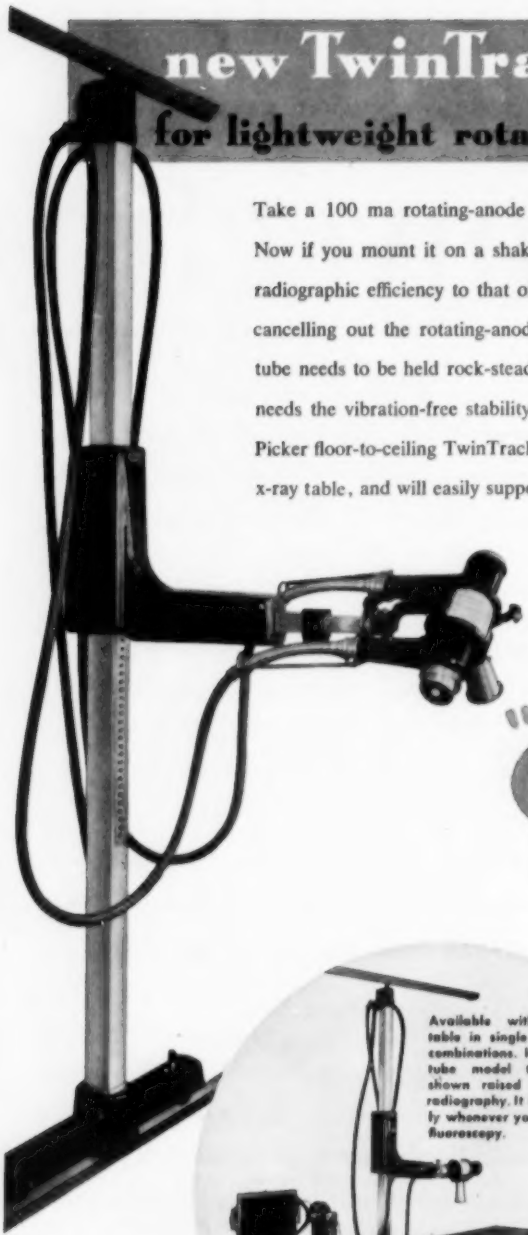

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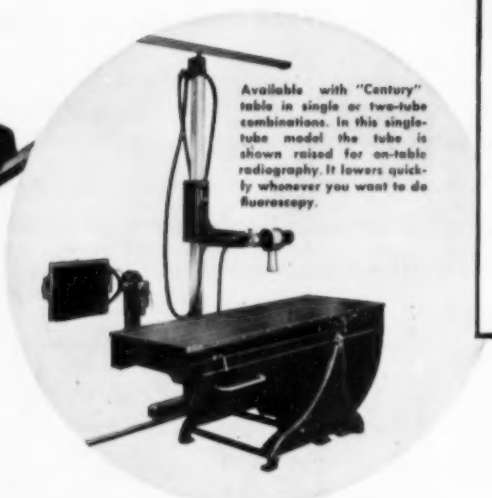

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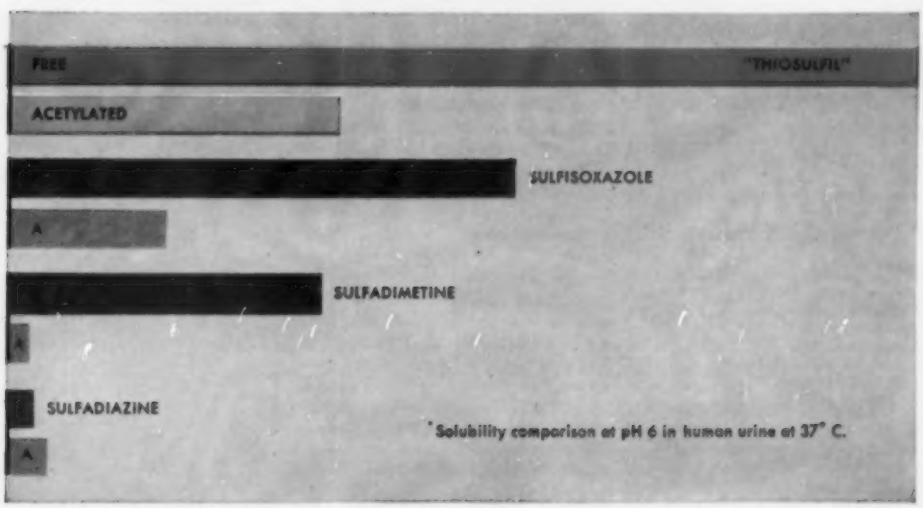

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DOUGLAS J. WOOD, M.D., has been appointed Medical Director of Cadillac Motor Car Division, General Motors Corporation, effective July 1, 1954. DR. WOOD was born in Greenfield, Massachusetts, in December, 1916. He took his undergraduate work at Massachusetts State College, Amherst; graduated M.D. from Tufts College Medical School, Boston, in 1942; interned at Boston City Hospital. During World War II, he served three years as a flight surgeon in the Air Force. He became identified with the Cadillac organization in April, 1950, and in October of that year was appointed Medical Director of Cadillac's Cleveland, Ohio, Tank Plant. He is a member of the Cuyahoga County Medical Society, the Ohio State Medical Society, the AMA and the Industrial Medical Association. In his new position Dr. Wood succeeds DR. E. A. IRVIN who on July 1 became Medical Director of Ford Motor Company; and he brings to it a varied and intensive experience in the field of industrial medicine.

HAROLD A. VONACHEN, M.D., Medical Director of Caterpillar Tractor Company, has been appointed to the Employee Relations General Offices staff. DR. VONACHEN, who gained national fame for his work in the field of industrial medicine and rehabilitation of the physically handicapped, will devote his time to counseling and advising medical staffs at all Caterpillar plants, parts depots, and the company's proving ground in Phoenix, Arizona. He also will have charge of establishing company standards

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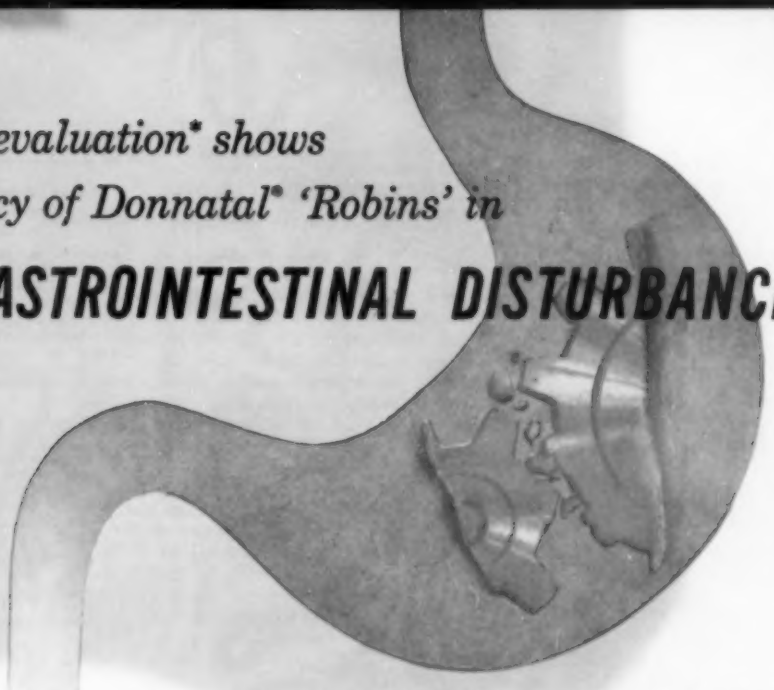

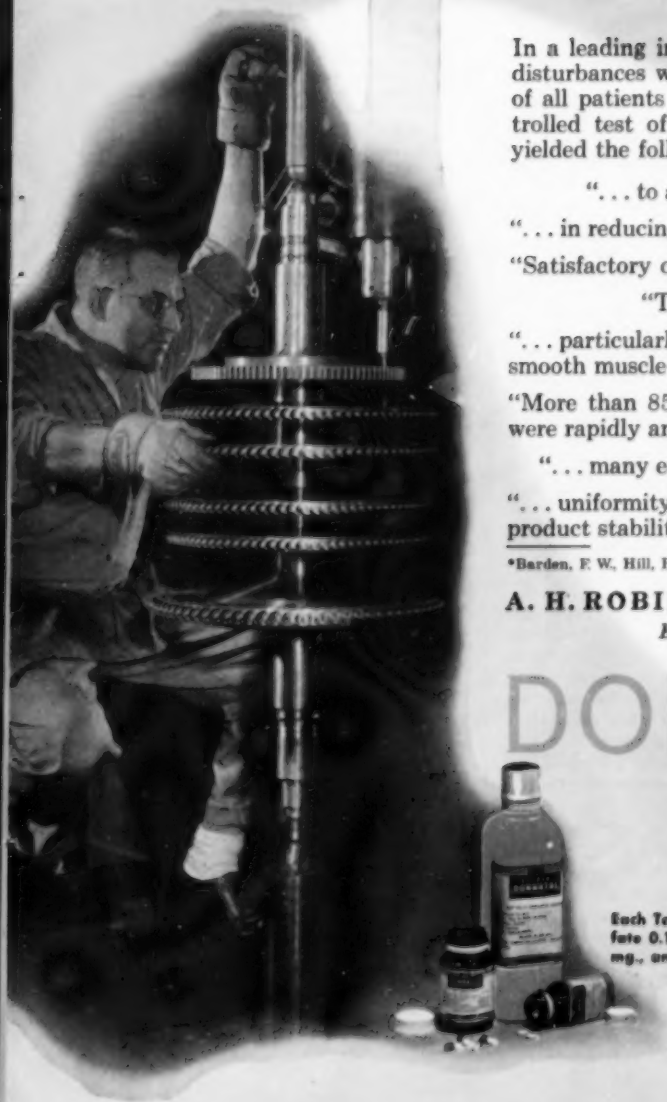

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*Barden, F. W., Hill, P. S., Mahaney, W. F., & Cuneo, K. J.: Journal Maine Med. Assn., Jan., 1954.

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MILTON H. KRONENBERG, M.D., Assistant Medical Director since 1944, became Caterpillar Tractor Company's Medical Services Manager at Peoria, Illinois, effective July 1. In his new capacity, DR. KRONENBERG has direct responsibility for all medical services available to Peoria Plant and General Offices people at Peoria.

CHARLES ASBURY, M.D., Regional Medical Officer at Pittsburgh for the Pennsylvania Railroad, joined the Medical Services staff of Caterpillar Tractor Company August 1 as Assistant Medical Services Manager at Peoria. DR. ASBURY spent a year of residency in industrial medicine at Peoria in 1952-53.

CHRISTOPHER LEGGO, M.D., Medical Director, Eastman Kodak Processing Laboratory, Palo Alto, California, has recently been appointed Associate Medical Professor of Public Health and Preventive Medicine at Stanford University.

M. W. JOCZ, M.D., Medical Director, has appointed LOUIS W. STAUDT, M.D., of Highland Park, as Assistant Medical Director of Chrysler Corporation. DR. STAUDT is a member of the Michigan State Medical Society and the Michigan Heart Association.

GRAHAM A. VANCE, M.D., has been appointed to the new post of Western Regional Medical Officer of the Pennsylvania Railroad, with headquarters in Chicago.

PROFESSOR L. CAROZZI, Secretary General of the International Congress on Industrial Medicine, which is meeting in Naples next month, advises that the members of the United States delegation propose as "Honorary Member" DR. ROBERT T. LEGGE, of whom nobody is able to believe that he has entered his 81st year. The following persons have been proposed for membership: *Cuba*: DR. JOSE A. BRION CAGIGAS, Membre de la Commission pour la Medecine du travail, Commiss. pour les Assurances sociales (Ministere du Travail), etc., Habana; DR. RAFAEL ANGEL PENALVER BALLINA, Professor de Medecine sociale, Hy-

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THE HEALTH Service of the United Nations, on Friday, July 16, at 12:00 noon, received a Certificate of Achievement from the OCCUPATIONAL HEALTH INSTITUTE, the recently established non-profit agency for evaluating medical service units and certifying those which meet the INDUSTRIAL MEDICAL ASSOCIATION'S standards of quality and quantity of health services provided for employees. The award was presented by DR. ROBERT COLLIER PAGE, of New York, Chairman of the Board of Trustees of OCCUPATIONAL HEALTH INSTITUTE, and was received by BENJAMIN COHEN, Acting Secretary-General. The UN Health Service, under the direction of DR. FRANK CALDERONE, is concerned with diagnosis and referrals, emergency treatment, inoculations, health counseling and environmental hygiene, reviewing and advising on applications for sick leave, medical group insurance and service-connected disability compensation, and establishment of medical standards for appointment and pensions. The medical services and periodic examinations are offered on a purely voluntary basis. Ninety-six percent of the staff, however, have availed themselves of these services.

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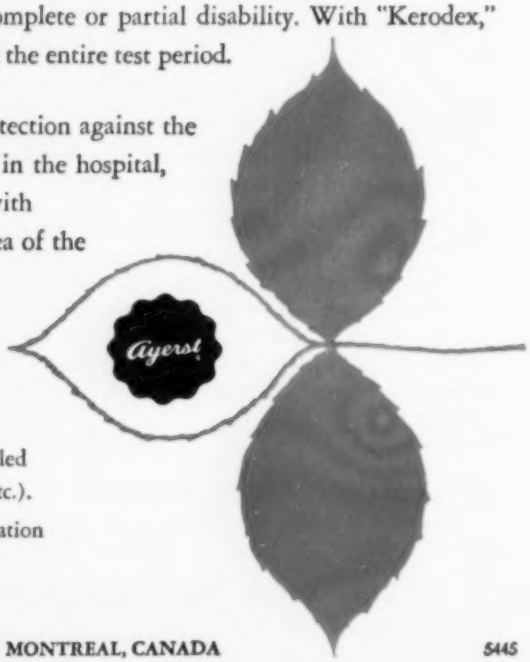

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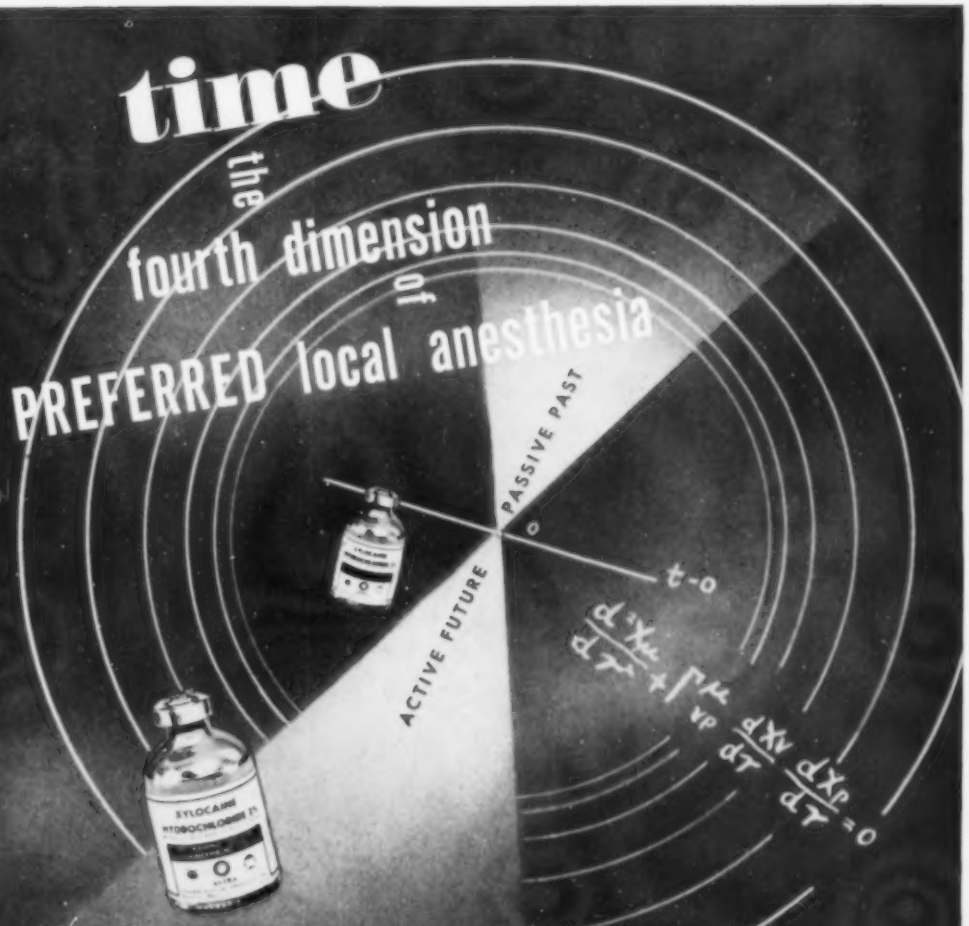

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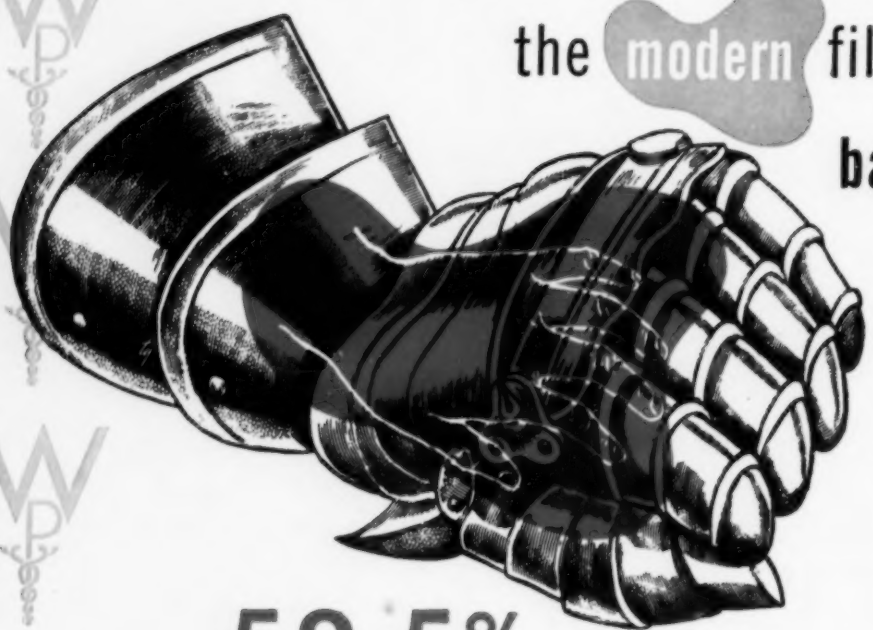

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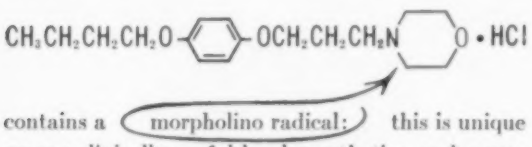

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1. Peal, L., and Karp, M., A New Surface Anesthetic Agent: TRONOTHANE, Anesthesiology, in press, 1954.
2. White, C. J., A New Anesthetic for Certain Diseases of the Skin, J. Lancet, 74:98, March, 1954.
3. Schmidt, J. L., Berryman, G. H., McAndrew, M. J., and Richards, R. K., Unpublished data, Abbott Laboratories, 1952.
4. Schwartz, F. R., TRONOTHANE in Common Pruritic Syndromes, Postgrad. Med., in press, 1954.
5. Birnberg, C., and Horner, H., A Simple Method for the Relief of Postpartum Perineal Pain, Amer. J. Obst. & Gynec., 67:661, March, 1954.

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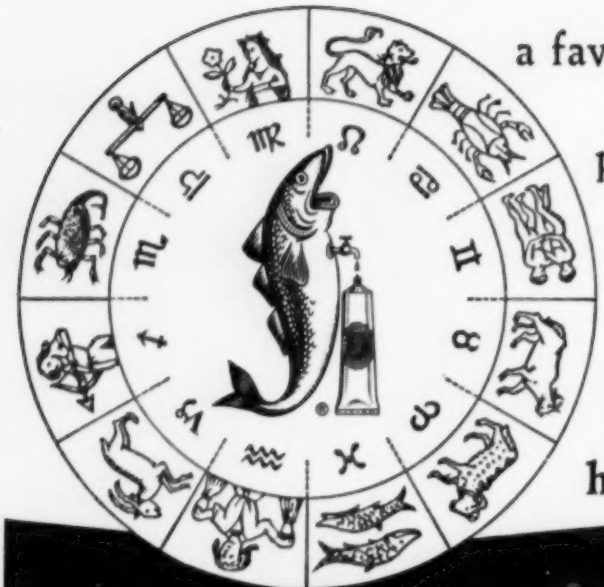

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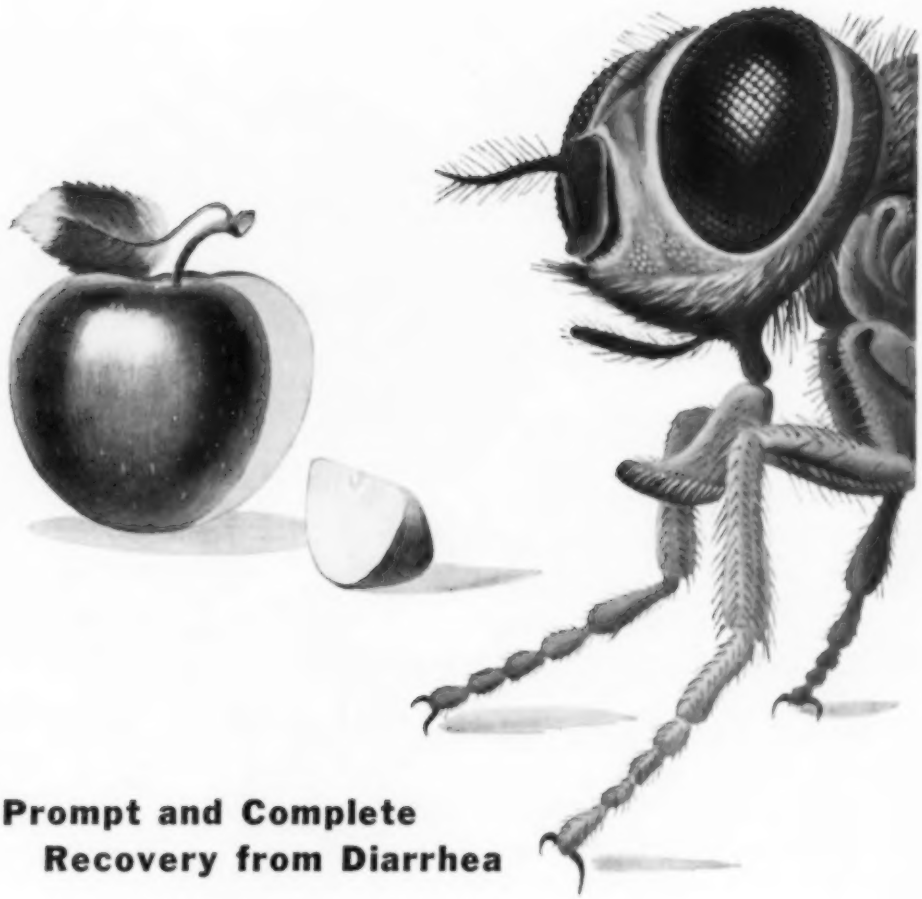
1. Grayzel, H. G., Heimer, C. B., and Grayzel, R. W.: New York St. J. M. 53:2233, 1953.
2. Heimer, C. B., Grayzel, H. G., and Kramer, B.: Archives of Pediatrics 68:382, 1951.
3. Behrman, H. T., Combes, F. C., Bobroff, A., and Leviticus, R.: Ind. Med. & Surgery 18:512, 1949.
4. Turell, R.: New York St. J. M. 50:2282, 1950.



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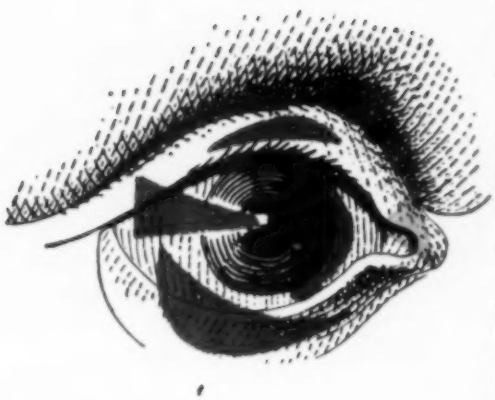

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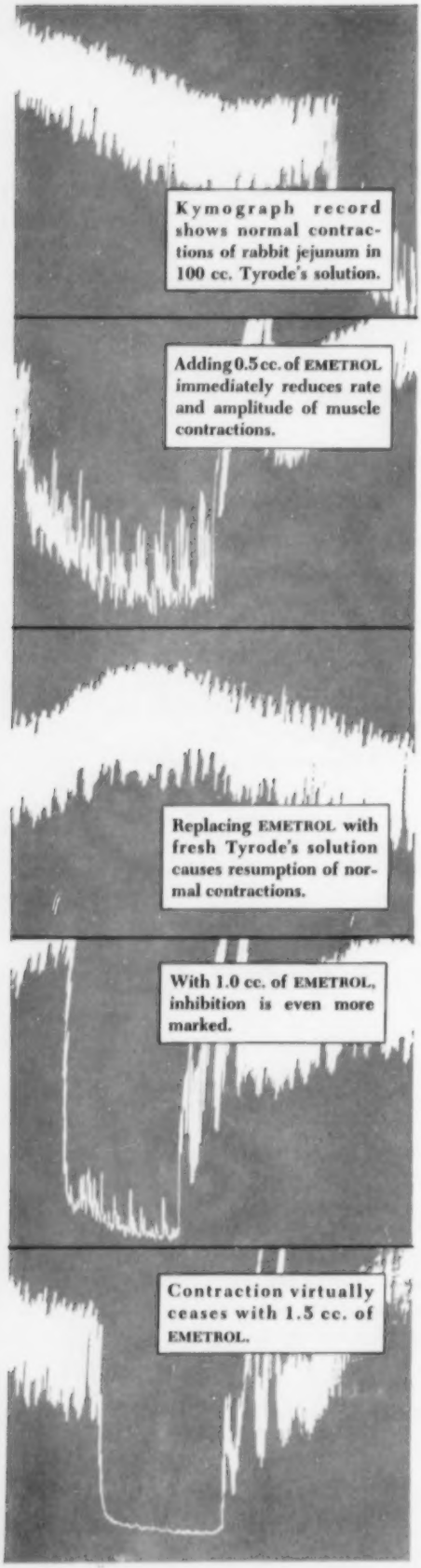
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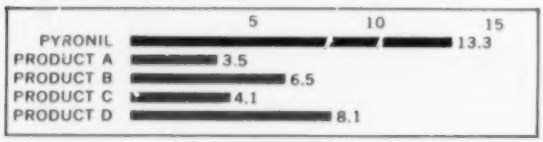

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INDUSTRIAL MEDICINE AND SURGERY

AUGUST, 1954

Occupational Aspects of Rheumatic Diseases—A Review

BERNICE MINTZ, M.D., and LEONARD J. GOLDWATER, M.D.
Division of Occupational Medicine, School of Public Health
Columbia University, New York City

THE RHEUMATIC diseases are important both to the worker and to industry. Whether or not these diseases are occupational in origin, they can interfere significantly with earning capacity and productivity, and so constitute an important problem in occupational medicine. The physician concerned with maintaining the labor force and the physician involved with the worker as a member of the community are equally interested in the occupational aspects for what light they can throw on etiology and prevention.

The definitive studies in rheumatology may be proceeding in the laboratory and at the bedside, but no disease process can be thoroughly understood and mastered without a knowledge of environmental factors. A man spends a third of his adult life at work. He cannot escape the influences of working conditions. The National Research Council in its survey of research in the rheumatic diseases for the American Arthritis Association called attention to the possible importance of these factors in etiology.[1] At the same time this survey, conducted in 1948-1949, revealed a dearth of information in this field. Leonard A. Scheele, Surgeon General of the U.S.P.H.S., addressing the Association in 1950, likewise listed, among the questions requiring clarification, the relationships between rheumatism and occupation.[2]

Before indicating any of the many avenues effective research can take, it seems necessary to review existing knowledge as it pertains to occupational aspects. Excellent reviews of the current literature and subject matter of the rheumatic diseases are published from time to time.[3,4,5] They contain much of interest to the investigator in industry, but do not provide a sufficient coverage and discussion within the appropriate frame of reference. Data on the rheumatic diseases in industry are not necessarily so labeled. They must be sought in plant medical records, studies of absenteeism, individual case histories, compensation reports, rehabilitation experiences, and surveys of disability in industrial and other population groups. At the same time the industrial investigator makes use of the knowledge gained from structural and physiological studies of joints, and always he must remember that the clinical case provides the basic unit on which his other data are built.

The final word on classification and diagnostic criteria has not been written, but medical interests in industry have already indicated their field of activity within the present-day classification of the Arthritis and Rheumatism Foundation.[6] Infectious arthritides, whether a part of rheumatic fever or gonorrhea, are acute diseases that usually leave no residua in the joints and can ordinarily be considered with the original infectious disease, not with the rheumatic diseases, for our purposes. Arthritis due to direct trauma and degenerative joint disease with its association with the aging process and repeated daily traumatic experiences are very much the concern of industry. The same can be said about certain non-articular forms of "rheumatism." The possible relationships between trauma and rheumatoid arthritis, and trauma and gout must be kept in mind. Likewise recent observations of cases of rheumatoid arthritis associated with silicosis are of interest.

In addition to the possible influence of occupation in initiating rheumatic disorders, the effect of working conditions on already existing disease, and the effect of the disease on the individual's working capacity are of vital concern both to industry and to the community. From this point of view any rheumatic disease that has become chronic in the worker is important. Rheumatoid arthritis, including ankylosing spondylitis, degenerative joint disease and chronic gout belong in this category.

Historical Survey

INTEREST in the apparent relation between occupation and "rheumatism" can be found in the literature in the early part of the century. Thompson in 1914 notes it as a disease of masons.[7] Kober and Hayhurst, in their book on "Industrial Health" published in 1924, mention

Preparation of this review was supported in part by a grant from the New York Chapter of the Arthritis and Rheumatism Foundation.

"rheumatism" as an occupational affliction in connection with several industries and occupations: clay products, brass foundries, mines, quarries, stone-breaking, zinc smelting.[8] Authority for these statements in many instances was German sick fund statistics dating back many years. Heavy work, exposure to wet, excessive heat accompanied by sudden changes in temperature, drafts and unfavorable postures were among the conditions considered responsible. Three physicians reporting on a follow-up of 411 patients with "chronic infectious arthritis" in *J.A.M.A.* in 1922 accorded enough recognition to occupation as a possible etiological factor to list the occupations represented by their patients.[9] Unfortunately other necessary information, such as population at risk, work status at time of report, and so on, is lacking.

A more direct approach to the rheumatic diseases as important causes of industrial disability appeared in the publication in 1924 of a report of the British Ministry of Health on "The Incidence of Rheumatic Diseases."[10] A study based on the records of physicians treating 90,000 of the 13,500,000 insured workers in England and Wales in 1922 indicated that these diseases accounted for approximately one-sixth of the industrial invalidity of the country and for over 3,000,000 weeks of lost work. The report recognized the limitations of its data in regard to confusion of terminology and classification, and inadequate occupational breakdown. It served, nevertheless, to direct attention to the magnitude of the problem, and provided leads for further study on age, sex, and occupational and geographic distribution.

Analysis of sickness absenteeism by cause, although not directed specifically at the problem of the rheumatic diseases has yielded suggestive information. Our own Public Health Service began bringing out such reports on a systematic basis in 1920.[11]

Copeman in a recent article refers to work done in the early 1930's in Germany and the U.S.S.R. on occupational aspects of rheumatism, and quotes the 1934 International Rheumatism Congress as advocating the elimination of damaging strain on the workers resulting from poorly designed machinery and continuous work without regular rest pauses.[12] About the same time Teleky was stating that the significance of occupational factors would be revealed only by the mass examinations of special groups of workers in selected occupations.[13]

Workmen's compensation legislation stimulated interest in the tie-up between trauma and arthritis with particular attention to back injuries, among others. Rehabilitation follows naturally, and so we find concern over restoration to usefulness of the injured or chronically handicapped worker. This concern has of necessity embraced those suffering from the rheumatic diseases and provided some information on their relation to work.

Much of the recent research has approached the subject as one facet in the epidemiological study of the rheumatic diseases. Sickness surveys of the general population have given an indication of the prevalence and the amount of actual disability they cause. Several of the studies provide breakdowns by age, sex and occupation so that leads for more intensive research are available. An example of a follow-up on such a lead is afforded by the English study on miners which is described elsewhere in this paper.

Further investigation of the occupational aspects of the rheumatic diseases remains to be done. The review which follows will make this all too clear and, it is hoped, will do its bit toward stimulating such work. Knowledge of the occupational factors which may contribute to disability provides one key to prevention, which after all is our ultimate aim.

Prevalence of Rheumatic Diseases in Industry

THE importance of the rheumatic diseases as a cause of impaired health in the general population has received ample verification in the numerous sickness surveys done in this and other countries.[14,15] The most recent one conducted here was part of the Census Bureau's Current Population Survey in September, 1951.[16] Questions were asked concerning the prevalence of rheumatic disorders, medical care received and the effect of such disorder on the amount and type of work performed by the affected person. On the basis of the sample surveyed, it was estimated that 10,104,000, or 9.3%, of the civilian non-institutional population of the United States, aged 14 and over believed they were so afflicted. Females outnumbered males and prevalence rates increased with age. No significant racial differences were found.

More intensive surveys in which it was possible to examine individuals with rheumatic complaints revealed that complaints could not always be confirmed by objective measurements.[17,18]

The importance of these diseases in the productive ages is indicated by Selby in a report on General Motors' employees.[19] Their Medical Department records showed that the most important source of chronic disability among the 186,000 males employed by them throughout the country during 1947 was in diseases of the organs of movement—joints, bones, muscles, and nerves. As in similar data, rates were even higher for their female employees and increased with age for both sexes.

Analyses of absenteeism also provide some inkling of prevalence of different diseases in the industrial population. As previously stated, the U.S.P.H.S. has been issuing reports on sickness absenteeism since 1920, based on data submitted by cooperating industrial sick benefit organizations. The latest complete year covered is 1952 when the number of absences of more than one week caused by the rheumatic diseases was 9.4 per thousand insured persons for the males and 20.3 for the females.[20] Three categories of illness contributed to these rates: (1) rheumatism, acute and chronic, (2) neuralgia, neuritis and sciatica, and (3) diseases of organs of movement except joints. The average of the 10 annual

rates covering 1943-1952, and therefore based on a larger number of person-years exposed, is 10.6 per thousand males and 14.6 for the females.

A similar analysis, but including the shorter absences beginning with one day, was made of the experiences of a Public Utility during 1938-1951.[21] The comparable rates in absences per thousand were 48.9 for the men and 80 for the women. The third category above, which included affections of muscles, bursae and tendons, contributed the greatest proportion to these totals. The tabulations contain additional data on time lost. The rheumatic diseases accounted for 7.7% of the time lost by the men and 7% by the women. In this data where the short absences were counted, the rheumatic group was exceeded in frequency only by the respiratory and digestive diseases, and by these two plus the cardiovascular in percentage of time lost.

The contribution of the rheumatic diseases to prolonged absence is recorded in the Public Health Service's analysis of durations of absences reported to it from 1940 through 1946.[22] Fifty-five percent of the eight-day or longer absences attributed to chronic rheumatism lasted more than four weeks; 52% of those due to the non-articular group lasted more than two weeks. The pattern of frequency versus duration was well exemplified by data from an oil refining company.[23] Comparisons were made among the four principal time-losers in the non-respiratory-non-digestive group of diseases: cancer, cardiovascular disorders, diseases of the nervous system, and rheumatism. The rheumatic eight-day or longer absences ranked first in frequency for men below and above 50 years of age. Measured by average length of absence, they were exceeded by those of the other three disease categories in both age groups.

Temporary disability insurance legislation provides us with another measure of rheumatic disease prevalence. As an example, among New Jersey's 40,735 compensated claims covering the period from January, 1949, to July, 1951, 6% were due to diseases of the bones and organs of movement.[24]

An attempt to determine the relative prevalence of the different rheumatic diseases on the basis of Consolidated Edison Company's absence records for the five years through 1951 was reported by Bunim.[25] The distribution which appears in Table I was obtained from 198 records on which accurate diagnoses could be made. Degenerative joint disease was the largest diagnostic group and accounted for over one-third. Rheumatoid arthritis was the smallest with less than one-tenth of the total diagnoses. Bursitis and gout contributed 13 and 11% respectively and a miscellaneous group 31%.

TABLE I.
RELATIVE PREVALENCE OF RHEUMATIC DISORDERS REPORTED IN 198 ABSENCES ATTRIBUTED TO THESE CAUSES IN EMPLOYEES OF CONSOLIDATED EDISON CO. 1947-1951 INCLUSIVE

Diagnosis	Percent
Degenerative joint disease	37
Bursitis	13
Gout	11
Rheumatoid arthritis	8
Other rheumatic disorders	31
Total	100

Figures on the 11,628 patients seen at the New York Hotel Trades Council and Hotel Association Health Center during 1953 give the breakdown for the 1,411 rheumatic diagnoses made.[26] We do not know how many of these were primary diagnoses and how many incidental findings in examinations for other complaints. The distribution (see Table II) agrees with the preceding in giving pre-eminence to degenerative joint disease (osteoarthritis and allied conditions in the nomenclature used) as the largest single group. This was exceeded by the non-articular forms combined. Rheumatoid arthritis was responsible for slightly less than 3% of the total.

TABLE II.
RELATIVE PREVALENCE OF RHEUMATIC DISORDERS IN 1411 RHEUMATIC DIAGNOSES MADE AT THE NEW YORK HOTEL TRADES COUNCIL AND HOTEL ASSOCIATION HEALTH CENTER, 1953

Diagnosis	Percent
Acute arthritis due to pyogenic organisms	0.3
Rheumatoid arthritis and allied conditions	2.9
Osteoarthritis and allied conditions	38.6
Muscular rheumatism, fibrositis and myalgia	36.0
Synovitis, bursitis and tenosynovitis*	22.2
Total	100.0

*Eleven of these cases were attributed to occupational causes.

Visits to the doctor and time off from work are not the only observable effects of rheumatic disease in the worker. In some instances the results may be more far reaching and are yet another indication of the industrial health problem these disorders constitute.

In the census study[16] cited above, 26% of all the cases reported changes or adjustments in their way of life. Giving up work entirely was only one method included. Many apparently were able to continue working by making certain adjustments. Changes included:

1. Giving up gainful work or housework entirely.
2. Changing to a lighter or more suitable type, such as one that did not require use of fingers.
3. Giving up all heavier parts of the work or of household chores.
4. Changing to part-time or occasional work.
5. Moving to a warmer climate.
6. Changing conditions of work, from night to day shift for example.

From age 45 to 65, the proportion of the population making these changes increased from 1.5 to 5% among those cases that had been diagnosed by a physician.

A more intensive study where the work records of 100 ambulatory patients with rheumatoid arthritis were analyzed indicated that the majority were pursuing their usual occupations.[27] Only 20% of the 40 housewives in the group were limited in performing their accustomed duties. Among the 60 employed persons 38.4% had kept

the same job, 18.3% were downgraded, 8.3% became housewives and 20, or one-third, were not working at all. There was little correlation between the severity, functional limitation and duration of the disease and the employment records.

It is not possible always to correlate the information gained in one study with that of another. Differences in methods of collecting data and criteria used, absence of information on relevant factors such as age, sex, occupation and socio-economic status, variations in geography, season, and time, make comparisons difficult. Where absenteeism data are used, it must be remembered that not only is the definition of the absence by duration important but so also are the limitations imposed by the membership requirements of the insurance plans reporting, the manner of certifying illness, and the sick-leave benefits offered. In spite of these shortcomings, however, certain findings stand out through repetition and offer some hint of important characteristics associated with the rheumatic diseases:

1. It is apparent that the rheumatic diseases constitute a significant morbidity problem with important economic implications from the point of view of loss of productivity and wages.
2. Prevalence measured on the basis of complaints is greater than that measured by objective examination.
3. Positive objective findings and functional state are not always proportionate.
4. Rheumatic disorders increase with age.
5. Females are more affected than males.
6. Osteoarthritis affects more people than rheumatoid arthritis.
7. Race is not a factor.

Occupation and Prevalence

OCCUPATIONAL associations have been suggested by a number of surveys. The 1951 Census Survey was able to compare occurrence by occupation and sex after making suitable age adjustments for the employed population afflicted with arthritis and rheumatism.[16] The highest rates were found among the farm workers of both sexes, and the private household workers among the females; the lowest occurred among the professional and technical workers. In all occupations the female rate was consistently higher than the male implying a specific sex difference. The complete breakdown can be seen in Table III.

The association of rheumatism with agricultural labor and domestic work had been noted elsewhere. A recent English survey found one in every four housewives affected and more rheumatic illness among rural populations than urban.[28] Where complainants were seen by physicians an excess of disc disorders was diagnosed in the domestic workers.[17] Axelrod has quoted unpublished reports of the U.S. Department of Agriculture's Office of Labor on the farm workers under their medical supervision.[29] Muscle strain of the lower back, legs and shoulders was a relatively important cause of occupational disability.

TABLE III.*
ESTIMATED PERCENTAGE OF EMPLOYED CIVILIANS REPORTED BY THE FAMILY TO HAVE ARTHRITIS OR RHEUMATISM, BY SEX AND OCCUPATION, SEPTEMBER, 1951
(Age-adjusted by the "indirect method" to the total employed population of both sexes.)

Occupation	Percent of employed population	
	Males	Females
All occupations	6.3	7.7
Professional, technical, and kindred	3.6	5.0
Farmers and farm managers	11.5	**
Managers, officials, and proprietors	4.7	7.6
Clerical and kindred	5.2	5.7
Sales	4.5	7.0
Crafts, foremen, and kindred	6.1	**
Operatives	6.1	7.4
Private household workers	**	9.5
Service workers except household	5.8	7.6
Farm laborers and foremen	8.0	15.1
Laborers except farm and mine	6.3	**

*Adapted from Table 3, p. 511 of reference 16.
**Percentages not computed because of small frequencies.

References to rheumatic disorders of miners have appeared frequently in the literature. An early report based on the Public Health Service's absenteeism data contains comparative rates for different industries.[30] Rheumatism (acute and chronic) measured in eight-day or longer absences per 1000 person-years observed gives miners a big lead (Table IV).

TABLE IV.
FREQUENCY OF DISABILITY DUE TO RHEUMATISM (ACUTE AND CHRONIC) LASTING MORE THAN ONE WEEK AMONG MALES IN SPECIFIED INDUSTRIES

Industry	Absences per 1000 years observed
Anthracite	20.6
Gold mining	15.6
Cement manufacturing	13.1
General manufacturing	5.2
Iron and steel	5.1
Granite cutting	4.5

A recent very well planned epidemiological investigation in England has confirmed the implications of these less satisfactory data.[31,32] An extensive field study among miners, their families and other workers in the community disclosed no appreciable difference in the gross incidence of rheumatic complaints in miners and non-miners. However, it appeared that the miners suffered an earlier onset and more time-loss due to their disabilities and that more of their disability resulted from pain in the back and along the sciatic nerve distribution and in the knees. To investigate this difference a more intensive follow-up was conducted with detailed clinical and radiological studies of randomly selected coal miners and employees of an engineering yard and its administrative offices. The final groups consisted of 84 miners and 87 non-miners of whom 45 were manual workers and 42 office workers. All were males, aged 40-50. X-rays were assessed without knowledge of the individuals' occupations.

The miners showed significantly more radiological changes of lumbar disc degeneration and possibly more osteoarthritis of the knees than

either manual or office workers. They also showed more arthritic changes in other joints such as elbows and hips. Although there was a significant association between the degenerative joint changes seen on x-ray and attacks of pain, a proportion of all categories of workers complained of rheumatic pain for which no objective evidence was found: 17% of the miners, 22% of the manual, and 41% of the office workers. In the miners the greatest concentration of this "undetermined" pain was in the lumbar and sciatic regions, and in the office workers in the cervical-shoulder-brachial regions. It was suggested that this diagnostic category may represent early manifestations of more serious disease.

Evidence implicating other occupations and industries with the rheumatic diseases can be found. Vernon investigated the sickness data of 1913-18 accumulated under the British National Health Insurance Act for the iron and steel industry.[33] All of the work was done out-of-doors or in exposed sheds, but varied in exposure to hot and heavy working conditions. The puddlers lost 78% more time from rheumatism (all types) than the average, and the steel melters 44% more. This excess appeared to be associated with extremely heavy work and chilling during interim periods. The engine and crane men who worked under normal temperature conditions and at lighter work had less rheumatism than the average. In all categories of workers, rheumatism accounted for more time lost in the older age groups as compared to the younger. Blast-furnace men who were more exposed to the elements than the steel men had a greater amount of sickness from all causes but especially from rheumatism. Here again there was an increase in the older ages (49-69 particularly).

Sickness absence similarly recorded in National Health Insurance data from 1921-25 indicated that printers lost only about half to a third as much time from rheumatism as the iron and steel workers investigated in the previous study.[34]

A comparison of American absenteeism data for 2000 workers in the glass industry with some unpublished material comprising over 200,000 male years of exposure contained in the files of the U.S.P.H.S. implicated glass manufacture as a possible rheumatism-inducing industry.[35] Rheumatic diseases accounted for 15.5% of the time lost during the five years 1930-1934 by the glass workers as against 10.3% in the other industries. Comparison with time lost from other diseases in the glass industry alone reveals that the rheumatic diseases ranked first with a total over 50% in excess of the days accounted for by influenza and grippe.

In data from the slaughter and meat packing industry, the rheumatic diseases were the most prominent among those showing great variations in rate with occupation.[36] Excessive rates were similarly found among certain workers in the soap industry, notably the laborers.[37]

The Institute of Social Medicine at Oxford, England, supervised the recording of sickness experience in two factories in 1946.[38] The 3,937 clerical and factory employees of a factory engaged in assembling finished products yielded some interesting comparisons. Eleven percent of the absences of the male factory workers responsible for 10.6% of the total time lost from certified illness was due to the rheumatic group. For the clerical workers, the equivalent figures were 7 and 9. The proportion of absences and time lost was less for the females and the ratio of factory to clerical was reversed. Age composition of the population at risk had been standardized for comparative purposes, but occupational breakdowns for men and women were not given.

Among the 5000 employees of a British bank the highest rheumatism rates occurred among those engaged in manual work—porters, painters, cleaners, etc.—in contrast to low rates in the clerical and printing departments.[39]

Stevedores were investigated in a study primarily devoted to pre-employment examinations.[40] The greater number of 85 backaches which received special study were principally associated with handling special or repetitive cargo and other conditions where acute trauma such as falls and blows could not be designated as the cause.

Two occupational diseases have been associated with arthritic lesions: caisson disease and silicosis. The joint involvement in caisson disease secondary to aseptic bone necrosis in the heads of the humerus and femur is well documented and quite understandable.[41] The occurrence of rheumatoid arthritis with silicosis is not so easily explained. A report presented at the Eighth International Congress on Rheumatic Diseases in 1953 discussed three such cases and suggested that lung and joint findings be correlated.[42]

The Pneumoconiosis Research Unit of the British Medical Research Council has made a detailed epidemiological investigation of the syndrome.[43] It had been previously noted that miners with both rheumatoid arthritis and silicosis had a distinctive x-ray picture of the lungs which differed from that of the progressive massive fibrosis ordinarily found. On the basis of this characteristic x-ray the investigators were able to pick out a relatively high percentage of coal-workers affected with rheumatoid arthritis: 55% as against 3% among those showing the usual lung lesions. The total dust exposure of these sufferers was longer than the average. Although no final explanation was offered, it was suggested that a fundamental generalized abnormality of tissue reaction to dust and infection might be present.

Occupational Factors in Rheumatic Disease

ONLY in caisson disease can we say that a specific etiological agent—air emboli—is responsible. The associations between certain occupations and rheumatic diseases suggest that these occupations have factors in common which may or may not be related to the disorder. The lumbosacral and knee joint arthritides of the miner appear to be functions of age and duration of employment with the localization of the arthritis directly related to the heavy work and postural conditions required. Heavy lifting and extended

use of certain muscles in repetitive work apparently can account for the back troubles of the stevedores. The data on the agricultural and domestic workers are also suggestive of a specific localization due to strain on the musculoskeletal system.

The mechanism in these cases may possibly be described as repeated trauma or microtrauma. Gardner speaks of "use destruction" and states that the degree and severity in a given joint will depend upon the type of movement to which it is most heavily subjected.[44] Numerous examples exist in industry in addition to those already mentioned. The Health and Occupation Encyclopedia of the International Labor Office lists many deformities and affections due to specific working positions and excess muscle use.[45] Localized arthritides secondary to the prolonged use of pneumatic tools have been described.[46] Duschak claims that prolonged quiet standing by lengthening the local circulatory intermission to the weight-bearing joints can result in premature degenerative osteoarthritis.[47] Occupational groups particularly exposed to such conditions include policemen, soldiers, cooks, waiters, factory workers, housewives, dentists, and surgeons.

Extra-articular rheumatic disorders likewise occur in association with repeated use of a part. Tenosynovitis proximal to the wrist joint is a well known cause of industrial disability.[48,49] Contributory conditions held responsible have been simple repetitive stereotyped movements associated with intensity of effort, jolts and vibrations, unaccustomed work, and return to work after an absence. A calcareous peritendinitis of the feet of a housepainter from pressure against the rungs of the ladder has been described.[50] Equally well documented have been inflammations of bursae caused by trauma or unusual use,[51] and the numerous cases, less easily diagnosed, of complaints of muscle pains with occupationally-induced localizations.[52]

Acute trauma has also been implicated in the natural history of the rheumatic diseases. Attacks of gouty arthritis have been reported following trauma to a joint and even the localization of rheumatoid arthritis has been attributed, in rare instances, to trauma. More usual are the focal arthritides following injury resulting from the application of a single strong physical force where the essential pathological lesion is indistinguishable from degenerative joint disease.

A secondary influence of trauma on existing osteoarthritis with disability prolonged out of proportion to the injury has also been postulated.[53] In an analysis of 162 compensable cases affected with arthritis only nine, or 5.6%, were classified as true traumatic arthritis. [54] Sixty percent were in the degenerative diagnostic category. Two-thirds of the total number of injuries occurred in people past 40 years of age.

The role of trauma in back injuries specifically is a common subject in the compensation literature. An insurance company's review of 113 industrial cases of intervertebral disc injury sustained during 1944-1947 indicated that the cause of injury was ascribed to strain in 66%, falls with contusions in 27%, and twists in 7%.[55] Manual laborers and machine operators were the two largest groups of workers affected, contributing 35.4% and 34.5% respectively. Age and sex breakdowns were not given.

In addition to working conditions that may predispose to trauma and hence to the rheumatic diseases, evidence pointing to temperature and humidity states as possible responsible factors has been presented. Vernon associated the excessive rheumatism rates of certain occupations in the iron and steel industry with the combination of extremely heavy work and chilling. Work in the glass industry involves exposure to excessive heat and sudden changes of temperature for many categories of workers. The highest rates for white male workers in the slaughter and meat packing industry were found among those working under high humidity or wet conditions.

The survey which preceded the more intensive study of English miners disclosed an excessive prevalence of rheumatic complaints among men and women working under cold and/or wet conditions: 51% of males working under these conditions as compared to a total of 31%; and 63% of the females as against 34%.[17]

As an indication of the possible effect of cold it is interesting to note that where absences have been tabulated by season rheumatic diseases as a cause show fluctuations with the greatest proportion in the winter months.[38,56] An inquiry into occupational factors affecting rheumatoid arthritis disclosed that only temperature could be considered at all significant.[57] Twelve percent of the rheumatoid patients had worked in a cold environment as against 5% of the controls. Humidity was not important.

Outdoor work and excess rates were associated in Vernon's blast furnace men, as well as agricultural laborers, and, not previously mentioned, drivers of certain bus and car companies.[58] Many workers with high disability rates in the glass industry were outside workers. Similarly 15% of the outdoor workers of the Swiss Railways suffered from rheumatism in contrast to 3% of the office staff.[59]

Physiological investigation has attempted to determine the validity of what may be just "impressions." The characteristics of synovial fluid and joint movements under varying temperatures have been studied by Hunter.[60] Increased work effort was required to move a joint exposed to cold. Kellgren has called attention to the fact that previously injured deep tissues cause excessive pain when cooled and such deep cooling will occur more easily in a wet than a dry atmosphere.[17] No evidence was cited of anatomical change following cold exposure. The U.S. Navy made a beginning, but so far with no conclusions, on the question of "weather-sensitivity" through its experiments on arthritis in pressure-controlled chambers.[61] Regulation of temperature and humidity in the treatment of the rheumatic diseases was reported from Sweden.[62] Clinical improvement occurred in otherwise recalcitrant

patients of whom 18 had rheumatoid arthritis, at 89.6° F and 35% relative humidity.

Comment

IN EVALUATING the findings reported in this review certain precautions are necessary. Some have already been mentioned, namely the difficulty of comparing one study with another, because of, among other things, the heterogeneous criteria employed, and the limitations of such absenteeism data as we have for estimating prevalence. In addition it should be mentioned that with the information provided in most reports it is difficult to relate the rates to specific occupations and working conditions. Also age standardization and knowledge of socio-economic status are generally lacking to make valid comparisons feasible. It should also be remembered that people vary in their reactions to disability and what may appear severe to one will never bring another to a physician or require an absence from work. Disease, too, may be present and not give rise to symptoms. Similarly the demands of the job itself may or may not make it apparent. Rheumatic complaints of the same magnitude may disable the farmer but permit the clerical worker to function. Occupations again may bias the results in still another way by exercising a selective influence in recruiting workers. Where the healthy and strong go into heavy work and the sickly and weak into lighter occupations, illness experience may vary accordingly. To sum up it is worthwhile repeating the truism—an association does not necessarily indicate a relationship.

Well controlled intensive studies are necessary before definitive statements on cause and effect can be proffered. Certain conditions governing such studies suggest themselves. Inadequate diagnoses and findings are not the data on which to base conclusions. Correlation between the individual's work history and medical experiences must be detailed and cover long periods of time. Changes and adjustments made and objective measures of efficiency such as production records, absenteeism, turnover and accidents, as well as an analysis of the present job and working conditions are significant details. Needless to say a study based on employees of one plant not only offers greater ease for investigation but also has the desirability of providing fairly uniform general working conditions. Such studies should be retrospective insofar as past history is concerned but at the same time follow-up over a sufficient period is necessary to encompass the prolonged natural history of a chronic disease.

While the relationships between employment and rheumatic diseases are being clarified from the point of view of possible etiologic factors in specific working conditions and of the effects of work on existing disease, another no less important purpose is being served. Any study designed with the aforementioned objects in mind would also quantitate the economic contribution of the individual with rheumatic disease. This may be an incidental result but one which occupies a pre-eminent position both for the individuals concerned and for the community in general. Scientific proof for the individual with arthritis that he is not necessarily doomed to an invalided condition can have functional repercussions through its psychological effects. At the same time, the problem of burdensome care for the community can be considerably alleviated.

Even now in spite of the sparse information of a definitive nature on occupation and rheumatic diseases, it is possible to utilize what is available as guides in the vocational placement of arthritic workers. With the objective of providing a satisfactory economic life without aggravating the existing arthritis or endangering others, attention can be given to those factors that appear to be related. Exclusion of men with pre-existing back conditions from stevedore work cut down on the back injuries experienced.[49] A more positive approach provides for selective placement of the job applicants in work that will not injure them. Postural and other strain-inducing conditions, factors placing a burden on affected joints, fatigue, temperature and humidity of work environment, must be considered. Intensive job analysis coupled with detailed functional evaluation of the worker and follow-up can put the handicapped arthritic to work.[63] Mere attention to the working conditions may be all that is required to protect the less severely affected.

Summary

IT HAS LONG been recognized that the rheumatic diseases are an important cause of disability in the industrial population and as such constitute a problem in occupational medicine. An attempt has been made to review the information available on the prevalence of these diseases in industry and their possible association with specific occupational conditions as a step toward the development of preventive programs. The sources used for this type of information include, among others, the U.S. Census Bureau's Current Population Survey of September, 1951, to which were added questions on rheumatism and arthritis, data collected by the U.S.P.H.S. on sickness absenteeism in industry, epidemiological studies carried on in England, workmen's compensation analyses, individual case histories, and physiological investigations.

Shortcomings in much of the existing knowledge were apparent. Confusion in terminology and criteria, differences in methods of collecting data, and lack of relevant information, controls and long term observations make it difficult to draw definite conclusions.

In spite of these deficiencies it is possible to point out certain findings which acquired some validity through repetition:

1. The rheumatic diseases constitute a significant morbidity problem with important economic implications from the point of view of loss of productivity and wages.

2. Most individuals affected by these diseases can continue to work. The more severely disabled may require adjustments either by changing their work or re-engineering their present jobs.

3. Certain occupational factors appear to be associated with an excessive incidence of arthritis and rheumatism: outdoor work and exposure to cold, sudden temperature changes, and wet; heavy work, excessive use of the same muscles, and postural conditions involving strain on the musculo-skeletal system; acute trauma.

This information, tentative as it must be considered, provides us with guides that can be used today in the vocational placement of the arthritic worker, and with leads for future well-planned investigations.

References

1. National Research Council: Division of Medical Sciences: Committee for Survey of Research on Rheumatic Diseases: Final Report. Washington, 1949.
2. Scheele, L. A.: Arthritis as a Public Health Problem. *Pub. Health Rep.*, 65:1351, 1950.
3. Robinson, W. D., *et al.*: Rheumatism and Arthritis: Review of American and English Literature of Recent Years. *Ann. Int. Med.*, 39:498, 757, 1953.
4. Waine, H.: Review of Rheumatic Diseases. *Arch. Int. Med.*, 93:121, 1954.
5. Ehrich, W. E.: Nature of Collagen Diseases. *Am. Heart J.*, 43:121, 1952.
6. Arthritis and Rheumatism Foundation in cooperation with National Institute of Arthritis and Metabolic Diseases: Manual for Arthritis Clinics, New York, 1952.
7. Thompson, W. G.: The Occupational Diseases. D. Appleton & Co., New York, 1914.
8. Kober, G. M., and Hayhurst, E. R.: Industrial Health. Blakiston, Philadelphia, 1924.
9. Billings, F., Coleman, G. H., and Hibbs, W. G.: Chronic Infectious Arthritis. *J.A.M.A.*, 78:1097, 1922.
10. Great Britain, Ministry of Health, G. Newman (Ed.): The Incidence of Rheumatic Diseases, Reports on Public Health and Medical Subjects, No. 23. H.M.S.O., London, 1924.
11. Brundage, D. K.: Sickness Frequency Among Industrial Employees: Disease Prevalence Among Wage Earners During the First Half of the Year 1920. *Pub. Health Rep.*, 35:2897, 1920.
12. Copeman, W. S. C.: Rheumatism as a Social and Industrial Problem. *Brit. J. Phys. Med.*, 9:66, 1946.
13. Telkky, L.: Rheumatism and Occupation. In Abstracts, *J. Indust. Hyg.*, 17:20, 1935.
14. U.S. Department of Health, Education and Welfare, Public Health Service. Perrott, G., St. J., *et al.*: Care of the Long-Term Patient: Source Book on Size and Characteristics of the Problem. Public Health Service Publication No. 344. U.S. Gov. Printing Office, Washington, 1954.
15. United Nations, World Health Organization, Expert Committee on Rheumatic Diseases: First Report, Geneva, 1953.
16. Woolsey, T. D.: Prevalence of Arthritis and Rheumatism in the United States. *Pub. Health Rep.*, 67:505, 1952.
17. Kellgren, J. H., Lawrence, J. S., and Aitken-Swan, J.: Rheumatic Complaints in an Urban Population. *Ann. Rheumat. Dis.*, 12:5, 1953.
18. de Blecourt, J. J.: The Screening of a Population for Rheumatic Disease, Report presented at the First Session, World Health Organization Expert Committee on Rheumatic Diseases. Geneva, 1953.
19. Selby, C. D.: Chronic Disease as an Industrial Hygiene Problem. *Am. J. Pub. Health*, 39:598, 1949.
20. Gafafer, W. M.: Industrial Sickness Absenteeism: Rates for Specific Causes in 1952 for the year and last two quarters. *Pub. Health Rep.*, 68:1052, 1953.
21. ————: Absenteeism, in U.S. Public Health Service. Gafafer, W. M. (Ed.): Manual of Industrial Hygiene, Saunders, Philadelphia, 1944, pp. 420-466.
22. ————, Frasier, E. S.: and Sitgreaves, R.: Studies on the Duration of Disabling Sickness: VII. Duration Table for Specific Causes of Disability Among Male Workers. *Pub. Health Rep.*, 63:901, 1948.
23. ————, and Sitgreaves, R.: Studies on the Duration of Disabling Sickness: IV. Duration of Disability from Non-respiratory-Nondigestive Diseases Among Male Employees with Particular Reference to the Older Worker. *Ibid.*, 58:969, 1943.
24. State of New Jersey, Department of Labor and Industry, Division of Employment Security, Disability Insurance Service: Analysis of Morbidities in Completed Claims. Communication to Medical Profession of New Jersey, March 18, 1953.
25. Bunim, J. J.: The Incidence of the Rheumatic Diseases in Industry. *Indust. Med.*, 22:302, 1953.
26. New York Hotel Trades Council and Hotel Association Health Center: Diagnostic Statistics for Year Ending December 31, 1953. March 22, 1954.
27. Ragan, C.: Keeping the Patient with Rheumatoid Arthritis Employable. *Indust. Med.*, 22:309, 1953.
28. Brooke, E. M.: Incidence of Rheumatic Diseases. *Month. Bull. Min. Health Gt. Britain*, 12:114, 1953.
29. Axelrod, S. J.: Health Problems in Industrialized Agriculture. *Am. J. Pub. Health*, 39:1172, 1949.
30. Brundage, D. K.: The Incidence of Illness Among Wage-Earning Adults. *J. Indust. Hyg.*, 12:338, 381, 1930.
31. Lawrence, J. S., and Aitken-Swan, J.: Rheumatism in Miners: Rheumatic Complaints. *Brit. J. Indust. Med.*, 9:1, 1952.
32. Kellgren, J. H., and Lawrence, J. S.: Rheumatism in Miners: Part II: X-ray Study. *Ibid.*, 9:197, 1952.
33. Great Britain: Medical Research Council: Industrial Fatigue Research Board: Vernon, H. M., and Rusher, E. A.: Fatigue and Efficiency in the Iron and Steel Industry. Report No. 5, H.M.S.O., London, 1920.
34. *Ibid.* Hill, A. B.: An Investigation into the Sickness Experiences of Printers. Report No. 54, H.M.S.O., London, 1929.
35. Gafafer, W. M.: Disabling Sickness Among 2000 White Male Glass Workers. *Pub. Health Rep.*, 56:1791, 1941.
36. Brinton, H. P., Seifert, H. E., and Frasier, E. S.: Disabling Morbidity Among Employees in the Slaughter and Meat Packing Industry, 1930-34, Inclusive. *Ibid.*, 54:2196, 1939.
37. ————, and Seifert, H. E.: Disabling Morbidity Among Employees in the Soap Industry, 1930-34, Inclusive. *Ibid.*, 54:1301, 1939.
38. Sutherland, I., and Whitwell, G. P. B.: Studies in Occupational Morbidity (2). *Brit. J. Indust. Med.*, 5:77, 1948.
39. Norris, D. C.: Incidence of Rheumatism Among Industrial and Clerical Workers. *Brit. J. Phys. Med.*, 9:70, 1946.
40. Stewart, S. F.: Pre-employment Examinations of the Back. *J. Bone & Joint Surg.*, 29:215, 1947.
41. Ravault, P., *et al.*: Osteoarthropathy Due to Work in Caissons with Compressed Air; and Slordahl, J.: Aseptic Necrosis of Bone in Caisson Disease. In Abstracts, *Arch. Indust. Hyg.*, 9:263, 265, 1954.
42. Martin, E., and Fallet, G. H.: Diseases of the Lungs and Chronic Rheumatic Disease. In Abstracts from Eighth International Congress on Rheumatic Diseases. *Brit. J. Phys. Med.*, 16:215, 1953.
43. Miall, W. E., Caplan, A., Cochrane, A. L., Kilpatrick, G. S., Oldham, P. D.: An Epidemiological Study of Rheumatoid Arthritis Associated with Characteristic Chest X-ray Appearances in Coal Workers. *Brit. M. J.*, 4848:1231, 1953.
44. Gardner, E.: Problems Relating to the Structure and Function of Joints. *J. Michigan M. Soc.*, 51:1208, 1952.
45. Pieraccini, G.: Occupational Diseases: Locomotor System. In International Labor Office: Occupation and Health: Encyclopedia of Hygiene, Pathology and Social Welfare. Vol. II, Geneva, 1934, pp. 478-487.
46. Copeman, W. S. C.: The Arthritic Sequelae of Pneumatic Drilling. *Ann. Rheumat. Dis.*, 2:141, 1940.
47. Duschak, E. [illegible]: Static Microtrauma. *Arch. Phys. Therapy*, 23:95, 1942.
48. Thompson, A. R., Plewes, L. W., and Shaw, E. G.: Peritendinitis Crepitans and Simple Tenosynovitis: A Clinical Study of 544 Cases in Industry. *Brit. J. Indust. Med.*, 8:150, 1951.
49. Rhodes, R. L.: Tenosynovitis of the Forearm. *Am. J. Surg.*, 73:248, 1947.
50. Miller, C. F.: Occupational Calcareous Peritendinitis of the Feet: A Case Report. *Am. J. Roentgenol.*, 61:506, 1949.
51. Bennett, G. A.: Medical Criteria Which Govern Relations of Trauma to Joint Disease. *Clinics*, 1:1448, 1943.
52. Slot, G.: Fibrositis Among Industrial Workers. *Ann. Rheumat. Dis.*, 2:134, 1940.
53. Hanlon, C. R., and Estes, W. L.: Osteoarthritis Aggravated by Trauma. *Am. J. Surg.*, 78:556, 1949.
54. Wolff, E.: Trauma and Arthritis: Analysis of 162 Cases. *Indust. Med.*, 17:40, 1948.
55. Marble, H. C., and Bishop, W. A.: Intervertebral Disc Injury: Analysis of 113 Industrial Cases. *J. Indust. Hyg. & Toxicol.*, 31:46, 1949.
56. Brundage, D. K.: Sickness Frequency Among Industrial Employees: Morbidity Among a Group of Wage Earners During 1920. *Pub. Health Rep.*, 36:1497, 1921.
57. Empire Rheumatism Council: Scientific Advisory Committee: A Controlled Investigation Into the Aetiology and Clinical Features of Rheumatoid Arthritis. *Brit. M. J.*, 4657:799, 1950.
58. Brinton, H. P.: Disabling Sickness and Non-industrial Injuries Among Drivers and Other Employees of Certain Bus and Cab Companies, 1930-34. *Pub. Health Rep.*, 54:459, 1939.
59. Boni, A.: The Problem of Arthritis in Switzerland. *Ann. Rheumat. Dis.*, 7:175, 1948.
60. Hunter, J., Kerr, E. H., and Whillans, M. G.: Relation Between Joint Stiffness Upon Exposure to Cold and the Characteristics of Synovial Fluid. *Canad. J. Med. Sc.*, 30:367, 1952.
61. Jones, H. L., and Reeves, E.: Observations on Weather-sensitive Arthritic During Controlled Exposures to Low and High Atmospheric Pressures. *J. Aviation Med.*, 23:77, 1952.
62. Edstrom, G., Lundin, G., and Wramner, T.: Investigations into the Effect of Hot, Dry Microclimate on the Peripheral Circulation, etc., in Arthritic Patients. *Ann. Rheumat. Dis.*, 7:76, 1948.
63. Viscardi, H.: Vocational Rehabilitation. *Indust. Med.*, 22:307, 1953.

Dermatoses Among Food Handlers

GEORGE E. MORRIS, M.D., Assistant Clinical Professor of Dermatology
Tufts College Medical School, Boston

AN ANALYSIS of 2,001 dermatological cases referred to me for examination and opinion as to questionable occupational etiology or aggravation revealed that 110 were food handlers. Of the 110, 82 cases were judged to be due to something encountered in their work, and 28 were judged to be non-occupational in origin. This is a high percentage of occupational cases, when food handlers are considered as a class: of the 2,001 dermatological cases studied, 63% were found to be due to occupational causes, whereas among food handlers the percentage rose to 75%. Therefore, dermatological eruptions, when seen in food handlers, are far more likely to be due to their work than among other groups.

OF THE common conditions seen, the most prevalent were caused by:

Trauma and its Treatment: 16 of the 82 cases;
Soaps or Detergents: 10 of the 82 cases;
Moniliasis: eight of the 82 cases;
Paronychias: three of the 82 cases; and
Dermatophytosis of the Hands: three of the 82 cases.

Twenty-nine had positive patch tests to such varying substances as bread flour; cake flour; strawberry-flavored frosting; chewing gum; crabmeat; spinach and beets; cinnamon; rum flavoring; gelatin; mineral oil; pineapple; starch; filet of sole; and lettuce.

No patch tests were performed on 11 patients. Some of the cases did not return for follow-up, and others had such conditions as edema of the hands due to ice water; and yellow pigmentation of the hands from candy dyes, or were referred only for an opinion and not for testing.

Of the 82 occupational cases seen among the food handlers, the nature of their work and their dermatoses were as follows:

Twenty were *Counter Girls or Counter Men*, including one *Sandwich Clerk*.

Their dermatoses were found to be as follows: eight had eruptions from soaps or detergents; two from pastes used in cleaning chrome or monel metal; two had skin infections from treatment of burns or jammed fingers; two were due to dermatitis venenata from fruit juices. The others were due to such causes as paronychias; erosio blastomycetica interdigitale; dermatitis venenata from rubber gloves; while the above-mentioned sandwich clerk bumped his ankle and developed psoriasis.

Twelve were *Candy Makers*. Of these, four had positive tests to starch; two to oils; and one to chocolate. The others were due to such causes as dermatitis of the fingers from overtreatment; multiple paronychias; and dermatitis venenata from rubber gloves.

Eleven were *Fish Handlers*.

The common conditions seen among these were: two with erosio blastomycetica; two with dermatitis venenata from crabmeat; two with eruptions following bones stuck in their fingers (one being followed by eczematized dermatitis; the other by erysipeloid). The others were caused by dermatitis venenata due to filet of sole, and due to boots worn at work; as well as fungous infection of the hand aggravated by wet work.

Eight were *Bakers*.

Four of these had positive patch tests to either cinnamon or bread flour, or both; and the others were due to dermatitis venenata from doughnut flour, cake flour, baking flour, diluted oil of spice, or strawberry-flavored frosting. One remaining had paronychias from wet work.

Eight were *Cooks* (including one *Cook's Helper*).

The common dermatological conditions seen in cooks were: three with "athlete's foot," aggravated by wet work; two with dermatitis venenata following treatment of a burn; and the others had moniliasis, and dermatitis venenata from fruit juices.

Three were *Fruit Handlers*.

Of these, one had dryness of the hands, and no patch test was performed; another had dermatitis venenata, with no test done; and the third showed a positive patch test to grapefruit and pineapple.

Two were *Waitresses*.

One of these bumped her leg, treated herself with a sulfa drug, and developed a dermatitis medicamentosa; the other applied another type of ointment, with the same result.

Two were *Poultry Dressers*, one of whom had eczematized dermatitis following a scratch with a bone; the other, erosio blastomycetica.

Two were *Vegetable Clerks*: one with a positive test to spinach and beets; the other claiming irritation by carrots, but no patch tests were performed, and he did not return for a follow-up.

Two were *Sausage Workers*; one showing sensitization from sausages; the other, generalized moniliasis.

Two were *Salesmen*—each suffering from a rash caused by trauma and its treatment.

Two were *Finishers of Chewing Gum*: One had a positive test to the gum; the other had a positive test to diluted spearmint and cassia flavors.

One was a *Packer of Tea Bags*, who had a sus-

pected dermatitis venenata from the box, but did not return for tests.

One was a *Canner*. No tests were taken, and he did not return for a follow-up.

One was a *Packer of Spinach*, who had an edema due to cold.

One was a *Potato Peeler*, who had erosio blastomycetica from wet work.

One was a *Gelatin Worker*, with a positive test to the gelatin.

One was an *Egg Candler*, with a positive test to waterglass.

One was a *Meat Counter Man*, who jammed his finger and developed a paronychia.

One was a *Washer of Vegetables*, with poison ivy of the wrists.

Of the 28 non-industrial cases seen in food handlers, the most common condition was mycosis of the feet. There then followed in order: pyodermas; atopic neurodermatitis; herpes simplex; scabies; pityriasis rosea; dermatitis venenata from non-occupational causes—and these varied from dermatitis of the lips caused by lipstick to ordinary poison ivy. Psoriasis, impetigo, pediculosis, varicose eczema, and even one case of chicken pox were also seen among this group of food handlers.

Summary

OF 2,001 dermatological cases, 110 were seen among food handlers, and 82 of these were judged to be due to something encountered in their work.

Trauma and its overtreatment, soaps and detergents, and fungus infections of the hands were the most common causes of lesions seen among food handlers.

Patch tests were performed, and the cause in many cases was determined by them.

Of the non-occupational cases seen among food handlers, the three most common causes were dermatophytosis of the feet; pyodermas; and atopic neurodermatitis.

(520 Commonwealth Avenue.)

Motivation and Absenteeism

ABSENTEEISM is a problem in the management of an organization. The causes are many, and often, as in the case of illness, accident, or the other unavoidable reason, beyond the control of the employee or management. But regular attendance is motivated behavior, and absence often is a reflection of inadequate use of the motivational forces which lead a person to come to work and to perform effectively while on the job. A recent study of absenteeism in a public utility organization illustrates how the motivational factors are related to a practical problem of administration. The study in question dealt separately with white-collar and blue-collar employees. In the case of blue-collar workers the following was found: (1) Employee-oriented supervision seemed to be more effective: 67% of low-absence men said their supervision "always or usually has time to talk about personal problems" as compared with 43% of high-absence men. (2) Group discussions in the work setting were effective: only 18% of the low-absence men said the "foreman practically never has group discussions" as compared with 34% of the high-absence men. (3) The feeling of work-group solidarity was important: 73% of the low-absence men said they "really are part of the group" as compared with 56% of the high-absence men. (4) Self-expression through use of one's skills and abilities was important: 27% of the low-absence men said their jobs gave them "a very good chance to do the things they are best at" as compared with only 6% of the high-absence men. (5) The job itself was important: when asked about their jobs, 33% of the low-absence men said they "like it a lot" as compared with 13% of the high-absence men.

—From "Employee Attitudes and Output," by RENSIS LIKERT and STANLEY E. SEASHORE, in *Monthly Labor Review*, June, 1954.

The Electromyogram in Industrial Medicine

A. A. MARINACCI, M.D., Los Angeles

IN ORDER to have a basic understanding of clinical electromyography, it is necessary to turn back to 1791 when Luigi Galvani stated that a muscle has two basic electrical properties. First, muscles contract when electrically stimulated, and, second, an electrical current is produced during muscular contraction. With this knowledge, the electricity generated by a muscle was designated as voluntary activity. The unit in action of voluntary activity is known as a motor unit, which consists of one anterior horn cell, its axon, and a bunch of muscle fibers.

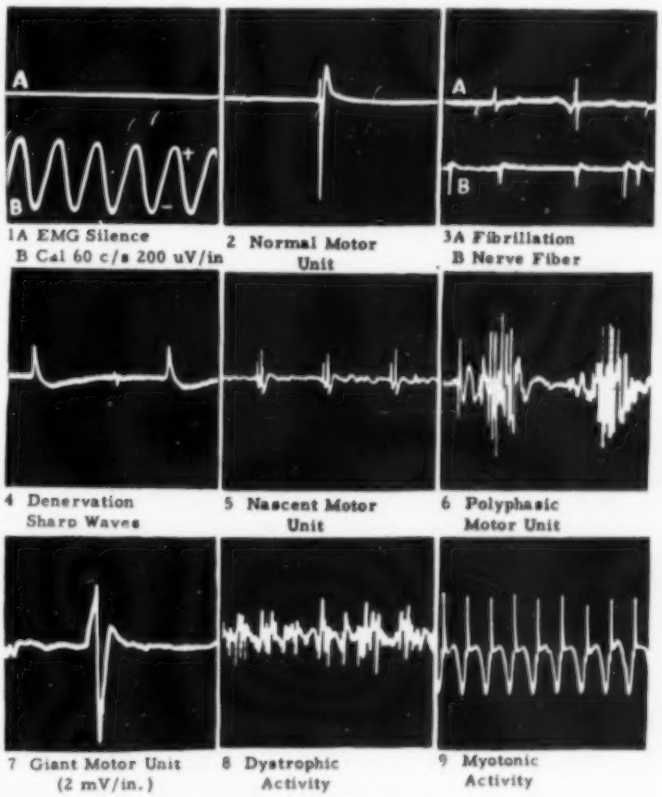
A German scientist, Schiff, in 1851, dissected the nerve supply to the tongue of an animal. The muscle remained paralyzed. Schiff was greatly surprised on the fifth day after the section to see a new life from the paralyzed muscle. This new life consisted of oscillation of the denervated muscle fibers. He noted that the denervated muscle stopped oscillating (fibrillating) when the muscle had become fibrotic, or when the nerve regenerated. Schiff further noted that when he cut the nerve to other muscles, the denervated oscillation was not visible unless the skin and the fascia were removed, and the denervated muscle exposed. It is apparent, because of this barrier, the activity developed by denervated muscle has long escaped the clinical application in medicine. This barrier, which prevents the visual observation of nerve injuries, has been removed by the electromyogram by the insertion of a needle electrode into the denervated muscle; such denervated activity is led into an electronic amplifier, through a loud-speaker, oscilloscope (a television-like screen) and tape recorder. The symptoms of a denervated muscle, due to nerve injuries, can be heard, seen, photographed, and recorded as an objective finding.

From the Department of Electromyography, Hospital of the Good Samaritan, the University of Southern California School of Medicine, and the Los Angeles County General Hospital, Los Angeles. Presented before the Industrial Section, Los Angeles County Medical Association, March 11, 1954.

Electromyogram Characteristics

THE electromyogram characteristics have been dealt with elsewhere.[1] It will suffice only to repeat them briefly. Normal muscle at rest has electrical silence (Fig. 1A). Motor units (Fig. 2) are generated with voluntary efforts. Negative nerve fibers (3B) activity is recorded when the needle electrode is accidentally inserted into an intramuscular nerve fiber. This activity is of practical importance for it resembles fibrillation and may be interpreted as such. The above characteristics constitute normal activity.

Denervated muscle, being hyper-irritable, upon the needle insertion evokes positive sharp waves (Fig. 4) and mechanical fibrillation, then spontaneous fibrillation (3A) may follow. These three potentials constitute denervated activity. Fur-



Electromyogram characteristics.

thermore, polyphasic motor units (Fig. 6) usually co-exist with denervated activity during degeneration or regeneration. Nascent motor units (Fig. 5) denote the beginning of nerve regeneration when recorded from previously fibrillating muscle. Giant motor units (Fig. 7) are recorded from old partial nerve lesions compensating for the atrophy. Patients with muscular dystrophies show dystrophic activity (Fig. 8). Cases with myotonia congenita show myotonic activity (Fig. 9). Myotonia dystrophica shows both myotonic and dystrophic activity.

The general clinical concept of a paralyzed group of muscles due to nerve injury assumes a different meaning with the electromyogram (EMG). For instance, in the presence of a radial nerve lesion at the radial groove which results in complete wrist drop, clinically it is said that all the extensor muscles are paralyzed. This is true, clinically, for it means that there is no activity. Electromyographically, however, these muscles are active. Individual muscle fibers are fibrillating for survival. This activity is called spontaneous denervation fibrillation. Furthermore, these same muscles are hyper-irritable to the needle insertion. The needle electrode evokes mechanical fibrillation, and mechanical positive denervated sharp waves. Thus a nerve injury manifests itself by denervated activity, which includes spontaneous fibrillation, mechanical fibrillation, and positive sharp waves.

The application of the EMG in nerve injuries, nerve regeneration, and root compression syndrome has been dealt with elsewhere.[1,2,3]

Other workers[4-11] have reported on the application of the EMG in nerve injuries. The EMG has become increasingly valuable in the evaluation of traumatic nerve lesions, whether such lesions are suspected, manifested or alleged. Consequently, the EMG has become an invaluable tool for the industrial surgeon.

The Criterion of EMG in Nerve Injuries

THE criterion for the presence of nerve injury is the finding of denervated activity only in a group of muscles innervated by the alleged, suspected, or manifested nerve, nerves, or plexus. The EMG is not only able to substantiate or rule out a nerve injury, but also is able to determine whether such a lesion is complete or partial. If the lesion is partial, it will also determine the degree of involvement, whether severe, moderate or slight. In a complete lesion, there is only denervated activity present. In a partial lesion, there is both denervated and motor unit activity. The denervated activity is proportionate to the severity. Furthermore, with the help of the EMG, the status of nerve regeneration is ascertained by repeated examinations. With EMG the status of nerve regeneration can be determined following end-to-end suture, crushing, or compression, long before there is any detectable clinical recovery. In addition, the EMG is able to give an accurate localization of the lesion, whether such lesion is in the spinal cord, root, plexus, or a peripheral nerve.

A 51 year old female was on crutches because of a fractured right ankle. On April 25, 1954, she noticed weakness of the right arm. Industrial surgeons suspected "crutches" paralysis. The EMG of May 27, 1954, revealed only partial radial nerve lesion at the elbow. Further investigation revealed a typical case of "Saturday night" paralysis.

Experience revealed in examining a large group of traumatic cases (approximately 3,000) that the EMG is to peripheral nerve injuries and regeneration what x-ray visualization is to bone fracture and healing. Prior to the advent of the x-ray, the clinician had to grope in the dark. The diagnosis of a fracture was based entirely upon clinical findings. Many fractures were missed, and many sprains were diagnosed as fractures. The progress of the healing entailed even more guesswork.

The EMG can thus be likened to roentgenography in peripheral nerve injury and regeneration. In many cases heretofore, the industrial surgeon has been at a loss in determining the presence or the absence of a nerve injury, the extent of nerve injury, and its exact location. In the realm of nerve regeneration, it was purely a matter of "time will tell." Today, with the help of the EMG, the industrial surgeon needs no longer to grope in the dark or to depend on "time will tell."

Nerve Injury versus Hysteria and Malingering

IN INDUSTRIAL medicine, the industrial surgeon not infrequently is confronted with emotional overlay by the allegedly injured individual, and occasionally the industrial surgeon can very well be responsible for aggravating such an emotional state.

It is a fact that malingering and hysteria exist following personal injury. On the other hand, there are cases that have been wrongfully accused of malingering while they had a bonafide nerve injury. Thus the EMG should be used in suspected cases of nerve injury as x-ray is used in suspected cases of bone fracture. This procedure will uncover many fraudulent claims; on the other hand, it will also protect the injured individual from false accusation, which brings unfavorable relations between the worker and the physician.

A 26 year old male alleged a blow in the right elbow, and subsequently he claimed a partial wrist drop. The industrial physician thought the patient was malingering. Eight months later, the patient showed improvement. This improvement further substantiated the industrial surgeon's opinion. The case came before the Industrial Commission. The EMG revealed that the patient had residuals of radial nerve involvement, distal to the elbow, and with the history of eight months' duration, there was a definite regeneration. Because of these findings, the patient was justly reimbursed for his disability.

Another case was that of an adult female who sustained an alleged injury of the right hip, and became completely paralyzed in the right leg. All the laboratory procedures were negative. EMG, four months after the alleged injury, showed no nerve injury. Investigation revealed that the patient was using her leg normally when not under observation.

Root Compression Syndromes

THE EMG is being used (1) to determine the presence or the absence of nerve root lesion when the clinical evidence is uncertain or indefinite; (2) to establish the exact nerve root involved; (3) to differentiate between peripheral nerve lesion, plexitis, and nerve root lesion; (4) to determine the recurrence of nerve root lesion; (5) to establish nerve root lesion in those cases where the myelogram is negative in spite of a nerve root compression syndrome; (6) to ascertain nerve root lesion where the myelographic defect is not consistent with the clinical findings; (7) to select cases for myelographic study; (8) to determine root lesion in cases where myelograms have been refused for one reason or another; and (9) to establish the presence or absence of nerve root lesion in medicolegal cases.

The following cases are examples.

A 36 year old male complained of a typical left root compression pain and weakness following alleged back injury. Opaque myelogram revealed a suggestive left L5 defect. The EMG revealed partial left peroneal nerve lesion at the level of the knee. Laminectomy for L5 disk was postponed. Another EMG, four months later, revealed evidence of regeneration, and the patient had uneventful recovery. There was no question that this patient was using the muscle of the back to compensate for the denervated muscle of the left peroneal nerve, which simulated root compression. In this case, the EMG justified the patient's complaints, localized the lesion, predicted uneventful recovery, and eliminated unnecessary laminectomy.

A similar case was a 64 year old male who complained of paresis of the left lower extremity, and alleged back injury. Controversial medical opinion arose of existing lumbar disk lesion. The myelogram revealed definite defect of the left L4 interspace. EMG revealed the involvement of the sacral plexus and, in a lesser degree, the lumbar plexus. Actually, the findings were consistent with neuronitis, for the longest axons were mostly involved. The findings were not uniform, nor restricted to one myotome, as found in disk lesions, but rather widespread. The denervated activity was the least proximally, and the most distally. Laminectomy was postponed, and eventually full recovery ensued.

In summary, in the root compression syndrome the EMG is not only able to substantiate that such a lesion exists, it is also able to differentiate such lesions from other neuropathies.

"Horse Serum" Plexitis

THE subject of "horse serum" plexitis or neuritis may be aptly mentioned here since antitetanus injections are used extensively in industrial medicine. Following the use of substances containing horse serum such as tetanus antitoxin, the industrial surgeon may be confronted with a picture of neuromuscular weakness and paralysis involving either one or more extremities, a portion of an extremity or even a single group of muscles innervated by one nerve. However, the brachial plexus is usually involved, thus deriving the name "horse serum" plexitis. The writer has seen 135 cases of "horse serum" plexitis, and, although the upper portion of the brachial plexus was predominantly involved, cases with involvement of only the cervical plexus and the long thoracic nerve of Bell were observed as well as a severe case with involvement of both the cervical plexus and the brachial plexus, bilaterally. As a rule, the prognosis has been very good in these cases, i.e., if the neuritis was due only to horse serum reaction. This affection, when occurring coincidental to industrial injuries, very often is alleged to be due to cervical disk pathology resulting from neck injuries. The EMG, in cases of "horse serum" plexitis, shows denervated activity in the clinically affected group of muscles; however, in a lesser degree, the denervated activity spreads far beyond the affected group of muscles. As a rule, the denervated activity is the least proximally and the most distally, and does not follow a segmental distribution.

A 45 year old female sustained multiple lacerations for which she received an anti-tetanus injection. Five days later she noticed paralysis of the left upper extremity. Four months later the patient, claiming fifth cervical disk pathology, was referred for an EMG. The EMG revealed severe denervated activity in the supra- and infraspinatus, deltoid, biceps and brachioradialis and slight denervated activity in the rhomboid, triceps, and the muscles of the hand and forearm. A minimal amount of denervated activity was seen in the erector spinae and the right upper extremity. Thus the EMG revealed involvement of the lateral cord of the brachial plexus. The denervated activity did not follow a segmental pattern but spread far beyond the clinically affected group of muscles. The findings were consistent with "horse serum" plexitis and the alleged fifth cervical disk lesion was ruled out, for in such a lesion the denervated activity would be confined to one myotome. Subsequent EMG's revealed regeneration, and 24 months after the onset of symptoms the patient had attained more or less full recovery.

EMG Differential Diagnosis

TRAUMATIC lesions, either in the spinal cord, root, plexus or peripheral nerves, as well as non-traumatic conditions such as degenerative diseases, infectious diseases and toxic conditions, etc., produce similar disability—muscular weakness and atrophy. When coincidental with trauma or such non-traumatic conditions as are alleged to be due to trauma, then clinically the non-traumatic lesion presents a bizarre picture, and it is difficult to distinguish this condition from a true traumatic lesion. With the use of EMG, the differential diagnosis is not difficult, and in fact is relatively easy. The criterion of differentiating traumatic from non-traumatic lesions is based on the distribution of the denervated activity, for each disease entity, whether traumatic or non-traumatic, produces denervated activity in its own specific anatomical muscular innervation. In progressive spinal muscular atrophy, the denervated activity is recorded not only from the clinically affected extremity, but also from the other extremities as well as the muscles of the back. In poliomyelitis, denervated activity follows a plurisegmental distribution and spreads far beyond the affected muscle group. In nerve root lesions (disk lesions) the denervated activity is restrict-

ed in one myotome, i.e., a group of muscles common to the innervation of a single nerve root. In neuronitis, the denervated activity is the least proximally, and the most abundant distally, i.e., the largest and the longest are mostly affected, however, the denervated activity is detected far beyond the affected group of muscles. In infectious plexitis, the denervated activity spreads far beyond the affected group of muscles, i.e., some of the denervated activity can be recorded in other extremities. In traumatic plexitis, the denervated activity is confined only in the injured extremity. In polyneuritis due to toxic agents such as alcohol, the denervated activity is most abundant in the periphery of the extremities, with little or none in the shoulder and pelvic girdles and the axial muscles. In mononeuritis such as pressure neuritis or "Saturday night" paralysis, as well as nerve injury, the denervated activity is confined only in the group of muscles innervated by the affected nerve. To sum up, in traumatic lesions of the spinal cord, the denervated activity is confined only in the segmental distribution of the trauma, and does not spread beyond.

In nerve root lesions, the denervated activity is confined only to myotome, and in the traumatic lesions of the plexus it is confined only to the distribution of the injured component or components of the plexus. In traumatic nerve lesion, the denervated activity is confined only to the group of muscles innervated by the injured nerve. In short, in traumatic lesions, the denervated activity is confined to the lesion produced by the trauma, while in other diseases the denervated activity spreads far beyond the clinically affected extremity.

Disability manifesting itself by muscular weakness and atrophy is also the result of a primary disease of the muscles, which is known as muscular dystrophy or myopathy. This disease entity also presents a bizarre clinical picture, and in some instances, it is difficult to differentiate it from disability caused by traumatic nerve lesion.

A 42 year old male presented wasting of the right deltoid muscle, and he alleged injury of the right shoulder. The EMG revealed dystrophic activity denoting that such atrophy was not due to nerve injury, but muscular dystrophy.

Patients with myotonia show myotonic activity. Coincidental cases with myotonia dystrophica and pure myotonia have also been encountered in industrial cases which alleged nerve injury.

Disuse atrophy due to restricted activity of one extremity may be the result of hysteria or malingering and can also present difficulty in differentiating such atrophy from that due to nerve injury or myopathy.

In disuse atrophy the EMG is normal. The EMG in disuse atrophy rules out both denervated atrophy and myopathy, but the EMG neither eliminates nor substantiates an upper motor neuron lesion.

Summary

THE electromyogram in industrial medicine is able to give definite objective findings. In suspected lesions it is able to substantiate the presence or absence of such lesions. Its value in malingering and hysteria is obvious. Also, the EMG is able to detect and differentiate traumatic from non-traumatic lesions. Thus the EMG takes its place beside x-ray as a valuable adjunct in the field of industrial medicine.

(1200 North State Street.)

References

1. MARINACCI, A. A.: Clinical Electromyography. San Lucas Press, Los Angeles (in press).

2. MARINACCI, A. A.: Electromyography as an Adjunct in Neurological Diagnosis: A Review. *Bull. Los Angeles Neurol. Soc.*, 18:25 (March) 1953.

3. MARINACCI, A. A.: The Value of Electromyography in Neurology. *California Med.*, 80:314 (April) 1954.

4. GOLSETH, J. G.: Diagnostic Contributions of the Electromyogram. *California Med.*, 73:355 (October) 1950.

5. GOLSETH, J. G., and FIZZELL, J. A.: Electromyographic Studies on Cats after Section and Suture of the Sciatic Nerve. *Am. J. Physiol.*, 150:558 (October) 1947.

6. HUDDLESTON, O. L., AUSTIN, E., and MARINACCI, A. A.: Diagnostic Features of Electromyography. *Arch. Phys. Med.*, 32:579 (September) 1951.

7. JASPER, H. H., and BALLEM, G.: Unipolar Electromyograms of Normal and Denervated Human Muscle. *J. Neurophysiol.*, 12:231 (July) 1949.

8. KUGELBERG, E.: Electromyograms in Muscular Disorders. *Journal Neurol., Neurosurg. & Psychiat.*, 10:122 (August) 1947.

9. SHEA, P. A., WOODS, W. W., and TRATAR, A. A.: The Myotonias: An Electromyographic Study, with Special Reference to Myotonia Acquisita. *A.M.A. Arch. Neurol. & Psychiat.*, 68:794 (December) 1952.

10. SHEA, P. A., WOODS, W. W., and WERDEN, D. R.: Electromyography in Diagnosis of Nerve Root Compression Syndrome. *Arch. Neurol. & Psychiat.*, 64:93 (July) 1950.

11. WOODS, W. W., and SHEA, P. A.: The Value of Electromyography in Neurology and Neurosurgery. *J. Neurosurg.*, 8:595 (November) 1951.

Subject to Streamlining

I BELIEVE the "in-plant" medical service principle is one of the basic foundations upon which genuine industrial medicine will be built. Is it not time we in the medical profession think of our services as an essential element of industrial production and, therefore, subject to streamlining for that purpose? It is acknowledged that industry should pay the doctor a reasonable fee or salary for making a careful physical examination of an employee, but industry should not be saddled with the additional expense associated with sending an employee to a doctor's busy downtown office during the plant's working hours. The consequent disruption of production, coupled with the payment of unearned wages is far more costly than the doctor's fee.

—From "Health Service in Industry," by W. E. PARK, M.D., in *Minnesota Med.*, May, 1954.

Varicose Veins and Varicose Ulcers

DIAGNOSIS AND TREATMENT—6,000 LIGATIONS

ANTHONY M. BARONE, M.D., Chicago

VARICOSE veins have been a malady of mankind as far back as there is recorded medical writing. They were recognized and treated during the time of Hippocrates in 490 B.C., and all through the subsequent centuries. The treatment included every sort of variations, from evacuation of blood from the varix, to burning, hooking, resecting and ligating the varicose vein, with multiple longitudinal incisions, multiple open spiral incisions, and with resulting amputations in many cases.

In 1891, the first concept of the etiology was published by John Trendelenburg. He demonstrated Sir Ben Brodie's phenomenon, that the cause of varicose veins is an incompentent valve in the saphenous vein with regurgitation of blood down the vein. However, the Trendelenburg operation was not a success because the saphenous ligation was performed at mid-thigh. Because of the surgical failures, together with the discovery of the hypodermic syringe in 1851 by Pravoz, the injection therapy became extensively applied. This was later condemned because of the severe toxic and caustic solutions used with resulting high mortality and numerous amputations. With the turn of the last century, the etiology was well known and the treatment definitely established. Injection solutions became standardized and made safe for usage. Nevertheless, the injection treatment failed because the reverse venous flow was still present which caused recanalization of the varicose vein.

In 1916, John Homans of Massachusetts General Hospital in Boston, was the first to give a complete and clear conception of the reverse venous circulation, and was the first to advocate the present-day method of a high ligation at the saphenofemoral junction including ligation of all the branches. In the past 20 years I have performed approximately 6,000 ligations and my experience with satisfactory results has given me no reason to resort to any other of the types of surgical procedures which are so commonly used today.

Surprisingly, varicose veins are still a subject of much controversy. Yet this controversy should not exist, since the cause is definitely known to be a congenital valvular insufficiency with regurgitation of blood in the affected vein of the lower extremity. As everyone knows, the normal venous circulation of the lower extremities flows from the superficial veins, made up of the long and short saphenous systems of veins, into the deep venous system of the femoral vein. In people afflicted with varicose veins, a reverse venous circulation is present. The blood flows backward from the deep system into the superficial system. This reverse circulation exerts a back pressure on the walls of the veins which in turn causes atrophy of the walls, particularly the muscular layer, and results in dilatation of the affected veins which is called varicose veins. The Trendelenburg test proves this. This reverse flow is present in the long saphenous and the short saphenous veins and their branches. The regurgitation occurs at the saphenofemoral junction at the fossa ovalis in 92% of all cases, and at the saphenopopliteal junction behind the knee in 8% of the cases. I am now completely convinced that we no longer need to be concerned with an incompetent deep communicating vein, or a blow-out, as it is called by some men. Experience has taught me that the reverse flow is completely stopped by an adequate ligation of the long saphenous and short saphenous veins, and that no other types of surgical procedures have been necessary. Operative records at the hospital prove that ligations have been performed only at the groin in 92% of the cases, and in 8% for the short saphenous vein behind the knee. Of the 8% of the cases involving the short saphenous vein, 6% involved ligating the larger branch, and 2% the smaller branch of the short saphenous vein. In 2% of the cases I have found that both long saphenous and both short saphenous veins required ligations.

Again, like the etiology, no controversy should exist in the treatment of varicose veins. This striking revelation in the treatment of varicose veins is based on results in 6,000 ligations. An adequate ligation performed at the proper place will correct the perverted venous flow and eliminate the regurgitation of blood down the veins of an extremity.

Schiassi, a Roman surgeon, in 1908 pointed out the cause of failures in the original Trendelenburg's ligation. He showed that the ligation was performed below the fossa ovalis where an adequate ligation was not carried out. And so it is today, only a high thorough ligation including all the branches will assure one of a permanent result.

However, the ligation alone is only one part of the treatment. Following the ligation in older people where varicosities involve the branches as well as the main saphenous trunk, sclerosing is

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necessary, because the existing non-functioning veins in the leg do not close spontaneously.

Knowing definitely the site of regurgitation by the Trendelenburg test, one can see even without any experience that an adequate ligation at these points will suffice, and that stripping the entire vein from the extremity or multiple ligations are absolutely unnecessary. I have seen cases with good results following a stripping operation, but in reality it was the fact that an adequate high ligation, performed at the same time, was responsible for the good results. The surgeon was apparently unaware that he had performed a complete ligation, thereby correcting the perverted venous circulation, and credited the good results to the stripping or multiple ligations. This phenomenon is analogous to the arrest of a duodenal ulcer in a case where a good gastrojejunostomy had been performed and the credit had been given to a vagotomy which was performed on the same patient.

Currently, the incidence of varicosity has been on the increase. In this modern machine age, men and women alike are decreasing their activities, such as walking, and increasing their inactivity, such as long hours of standing, and are intermittently or continuously raising the venous pressure in the lower extremities. This venous insufficiency has created a potent cause of disability both in the armed forces and among the civilian population.

Since varicose veins are a common disabling malady affecting a great percentage of our population, and because they are seen by almost every doctor, the subject should not be treated as playing a minor role. The operation is not a minor procedure. I strongly believe that a great injustice is done to the patient by this classification. I feel that a comprehensive knowledge of the surgical anatomy and a sincere interest in the subject are essential to give the assurance of cures and no failures.

IT IS important for everyone concerned to know the anatomy of the venous circulation. One should be conversant with the difference between the long saphenous and the short saphenous veins, their courses, and their respective proximal terminations. I have seen cases where the long saphenous vein was ligated in the groin while the short saphenous vein was responsible for the varicosities in the leg. This is not a recurrence, but a mistake in ligating the wrong vein. A definite knowledge of Scarpa's triangle, with Poupart's ligament, the adductor longus and the sartorius muscles as its boundaries, will help the surgeon in locating the saphenofemoral junction without the necessity of marking or scratching the skin in the groin to localize the fossa ovalis. With the thigh flexed at the knee, Scarpa's triangle will present itself. The fossa ovalis is an important landmark as it exposes all the branches which should be properly ligated. Edgar V. Allen, of the Mayo Clinic says, "It has been my observation that most general surgeons are better acquainted with the surgical anatomy of all of the abdominal viscera than they are with that about the fossa ovalis." The long saphenous vein should be ligated at the saphenofemoral junction. This is the most crucial part of the operative procedure because a long stump leads to a recurrence. Likewise, one should be familiar with the anatomy involving the short saphenous vein, knowing that it divides into two branches, the large one flowing into the popliteal vein, and the smaller one running upward about four to six inches above the knee and flowing into the femoral vein. This knowledge of the anatomy is important because regurgitation may be present in one or both branches, and a ligation may be necessary to one or both branches. Failure to observe these findings will result in inadequate treatment and will be erroneously considered a recurrence.

I strongly advocate a proper and complete examination of the lower extremities. A complete inspection of both the anterior and posterior aspects is essential. The dilated veins should be percussed to group the veins of the extremity in their respective systems, namely, the long saphenous system and the short saphenous system. After this, the Trendelenburg test should be carried out to determine which vein is causing the regurgitation of venous blood. If one gets complete collapse on emptying of the veins with pressure held at the saphenofemoral junction, he readily knows and sees that the pressure held in the groin has prevented the downward flow of blood in the veins. A proper ligation in the groin will undoubtedly give the same results as the tests. Here I wish to emphasize the importance of maintaining adequate pressure in the groin in carrying out the Trendelenburg test. Otherwise some regurgitation will distend the veins in the leg and the test will be erroneously interpreted. This has been and still is a common mistake in the application of the Trendelenburg test. However, if the veins of the leg do not collapse and do not remain empty with pressure held in the groin, it means, and one can see, that there is regurgitation through an incompetent short saphenous vein. This can be determined by repeating the test and placing the pressure where one believes it should be placed and observing the results in a like manner. In about 1% to 2% of all cases the patient may have involvement of both the long and short saphenous veins. I have seen this occur mostly in men, and these cases require a ligation in the groin and one posteriorly behind the knee.

I have always felt, and still do, that the Perthes test, to determine the patency of the deep veins, be carried out in all cases before submitting a patient to a ligation. The test consists of having the patient walk with a tourniquet placed above the knee. If the varicose veins empty during muscular contraction the deep vein is patent, permitting the blood to pass into the deep circulation. If, however, the varicosities do not collapse the deep vein is occluded.

There are some cases where the deep veins are occluded and the superficial veins are simply dilated without the presence of back pressure.

These dilated veins should never be operated or injected. This is also true in cases with a history of trauma, especially in fracture of the extremity where the deep veins have been segmentally occluded, and invariably the superficial vein is dilated but shows no evidence of regurgitation. For these cases of segmental occlusion of the deep vein, I have introduced the multiple Perthes' test showing the level of the occlusion present in the deep vein. The test consists in repeating the Perthes' test at various levels in the extremity until a positive finding of the dilated vein shows a greater distention instead of collapse of the veins. One must be governed by the fact that a ligation is indicated only in the presence of regurgitation of blood down a vein, and not because dilated veins in the leg are present. There are also a number of cases with simple dilated capillaries; these do not need ligation. These capillary dilatations of unknown etiology are due to vessel fragility and can be treated for cosmetic purposes by injection therapy.

Every case of venous regurgitation and stasis which is the result of varicose veins, sooner or later develops pathological changes in the tissue of the extremity. Congestion of venous blood causes the tissues to become saturated with carbon dioxide or carbonic acid and products of catabolism. The presence of these impurities causes the tissue to lose its resistance to infection and its healing qualities, and, therefore, it is subjected to various types of complications, such as stasis dermatitis, cellulitis, phlebitis, thrombosis, and ulceration. Systemic and local urticarial manifestations are not uncommon and are on an allergic basis. The sensitiveness is due to the presence in the leg of the patient's own proteins. As soon as the stasis is alleviated the systemic rash will leave spontaneously without any other treatment.

I have seen many people who have been treated for heart disease associated with a great degree of stasis in the extremity which produced symptoms of heart disease, such as dyspnea, rapid heart beat, and enlargement of the heart. The explanation for these cardiac manifestations is that the individual does not have a 100% blood volume circulating throughout his system. Alton Ochsner has shown that in an extremity affected with a great degree of stasis there is present an independent venous circulation. The blood passing up the femoral vein regurgitates down the extremity through the incompetent long saphenous vein. The blood cells never reach the heart and for this deficiency in blood volume the heart compensates, and, as a result, the patient presents cardiac symptoms. In many of these cases as soon as the stasis is removed and normal circulation restored, the patient is greatly relieved of the cardiac symptoms. We should not be too hasty in making a diagnosis of coronary disease simply because the patient reveals sudden precordial or presternal pain with cough, dyspnea, and cyanosis. Too often pulmonary embolic manifestations are present. It is wise to examine the extremities for pre-existing varicose veins, cyanosis, swelling, points of tenderness along the vein, and the presence of clotting. I have seen many cases in the hospitals being treated for coronary disease that had pulmonary emboli instead. Some cases were revealed at autopsy. Therefore, it is cardinal to examine the extremities and save embarrassment as well as the patient.

Lymphangitis, either acute or chronic, is a common sequela in these cases, and with resulting occlusion of the lymphatics there is lymph stasis which, in turn, causes a fibrotic infiltration in the leg, producing a hard swelling resembling an elephantiasis. The tissue fibrosis chokes the arterials of the leg and with this diminution of arterial blood supply there is a considerable diminution in the healing process of the secondary complications. An important axiom for all doctors to follow is to practice the routine examination of the lower extremities and strongly to advocate the treatment of varicose veins, so that the chronicity of the disability and the suffering can be entirely prevented.

ONE of the most common painful and disabling complications of varicose veins is the varicose ulcer. The reverse flow in the varicose veins is the basic factor. This venous insufficiency causes stagnation of blood. In turn the tissues become waterlogged and lose their resistance to infection and trauma. With tissue acidosis and impaired nutrition, an ideal condition is present for ulcer formation. Along with this development, there is also a reflex arterial vasoconstriction causing a diminution of arterial blood flow, and this in turn diminishes lymphatic flow with resulting lymph stasis and connective tissue infiltration. The end result is an indurated swelling. Once the continuity of the skin is broken, local necrosis is common. If the venous stasis is not stopped, the ulcer enlarges and often times penetrates to involve the tibial bone. Hence a potential state of gangrene exists. Microscopic examination reveals largely inflammatory reaction with no specific infection. Staphylococcus and streptococcus predominate, associated with other organisms.

Many ulcers are associated with a streptococcus weeping erythematous dermatitis which is very resistant to treatment. Only after complete elimination of stasis will the dermatitis subside. The diagnosis of a varicose ulcer is simple. It is always associated with varicose veins and a reverse flow. It is almost always located on the medial side, assuming all sizes and all shapes. It is a painful ulcer with sloping edges and a profuse discharge. In some cases, instead of breaking of the skin to form a varicose ulcer, the saphenous vein perforates at its lower end to develop into a phlebitic ulcer. The basic etiological factors and the treatment are the same as those of a varicose ulcer. The only difference is that the phlebitic ulcers are smaller. Another common type of ulcer which simulates the varicose vein ulcer, is the ulcer following femoral vein thrombophlebitis or chronic phlegmasia alba dolens. Here, again, the etiology is the same, venous insufficiency with

stasis of venous blood. In many cases the reverse flow is also present.

Other types of ulcers in the leg are rare. They are not associated with varicose veins, a reverse flow, and thrombophlebitis. These are syphilitic ulcer, tuberculous ulcer, malignant ulcer, trophic ulcer, and actinomycotic ulcer.

The treatment of a varicose ulcer is simply to eliminate the stagnation of venous blood which has caused it. This is accomplished by first stopping the reverse flow with an adequate ligation, and, second, compressive measures by means of a rubber sponge applied to the ulcer area to eliminate local congestion. This is important and must be completely cared for in order that the ulcer will heal and remain healed. I have eliminated all other surgical procedures such as resection of veins, multiple incisions, excision of the ulcer area, and frequent skin grafts. Skin grafting is now an infrequently used procedure and is resorted to only in selected extensive ulcerations. One must make certain that all stasis, lymphangitis and tissue infection are completely eliminated before grafting. The local management of the varicose ulcer is as follows: the skin and ulcer are cleansed well with benzine. This agent removes discharges most readily and is the least painful to the patient. The area is then washed with alcohol and dried. The ulcer is now covered with a bland ointment placed on several thicknesses of gauze. No other form of ointment containing heavy metals or irritants is used because the skin is sensitive to local reaction and a superimposed chemical dermatitis will result. This also includes all sorts of antibiotic pastes which are on the market. A soft sponge rubber large enough to overlap the edges of the ulcer is applied over the dressing. This is snugly wrapped with a gauze bandage. Finally, a good four-inch elastic bandage is applied as tightly as possible, wrapping the entire leg including the ankle and up to below the knee. The patient is instructed to walk 20 minutes out of every hour the first day and followed by walking periods the following days. This may be painful at first, but within 24 to 48 hours the pain subsides, and an improvement is observed. The dressings are changed when necessary, depending on the amount of secretion. For many years I have discontinued the use of the Unna's paste boot because the accumulation of the secretion and the melting of the paste cause irritation and maceration to the skin and are suitable for bacterial proliferation. The sponge rubber causes a firm massage to the area and forces away the stagnant fluids from the tissues. Muscular contractions in walking promote normal upward venous circulation. This modern ambulatory compressive therapy, together with the ambulatory surgical ligation not only gives permanent results, but also relieves the patient of the old treatment of long periods of bed rest and extended hospitalization. Once the ulcer has healed, the patient is instructed to continue the use of the elastic bandage and to protect the leg from trauma until such time as the ulcer has generated substantial epidermis.

THERE are two stages in the treatment of varicose veins. Both are essential, and each stage is dependent on the other. This is known as the combined treatment of ligation and injection. The first, the surgical stage, is the ligation to correct the perverted flow of venous blood in the leg; the second is the injection stage, to sclerose all dilated, non-functioning veins. This combined plan of treatment must be clearly understood by the patient before it is undertaken. The treatment has been completed only when all varicose veins to the extremity have been sclerosed and have disappeared. This combined treatment has proved most favorable. If sclerosis and fibrosis of the veins do not result, regurgitation is still present.

With reference to prevention, I do not believe varicose veins can be prevented since they are inherited. However, the complications can be entirely prevented by treating the varicose veins early. The writer feels that the second stage of the treatment, the injection therapy, could almost be eliminated if the patient would have the ligation early in life, in the second or early third decade.

One should be on the alert when doing a ligation that there is a tremendous variation in the number of branches at the fossa ovalis. The writer has seen cases in which the number of branches ranged from none to 11. I have also seen branches coming off the femoral vein proximal to the junction with the long saphenous. Thus, it is important in order to arrest the regurgitation to ligate all branches where it is apparently necessary.

The indication for ligation, as previously mentioned, is the presence of a valvular insufficiency with regurgitation in the vein. The contraindications are practically none except for a short life expectancy. Pregnancy is no longer a contraindication. It is known that if the stasis is eliminated, the thrombo-embolic manifestations so often associated with pregnancy can be entirely prevented. These manifestations are acute phlebitis, acute thrombosis, phlegmasia alba dolens, pulmonary infarct, fatal pulmonary occlusion, and vulvar hemorrhage during a delivery. An ulcer in the leg is no longer a contraindication because a ligation will stop the reverse flow and eliminate the venous stasis which is the basic etiology. Diabetes is no longer a contraindication because, as in other types of surgery, it can be controlled during the operative stage. For some years I have been ligating the long saphenous vein when inflamed or thrombosed. A thrombectomy is performed by means of aspiration. The deep femoral is also aspirated and freed of clots, if present, through the saphenofemoral opening. The saphenous vein is severed and tied. This procedure prevents the passage of clots into the deep vein and the pulmonary artery. A phlebitis will resolve sooner with a ligation because the stasis is eliminated and the vasospasm which is usually present in a phlebitis will also be alleviated.

The operations are performed under a local anesthetic, using 1% novocaine solution. The patient is not hospitalized. For long saphenous ligation a transverse oblique incision, about three

inches long, is made parallel to and just below Poupart's ligament. First, a layer of fat is encountered beneath which is a very thin membranous layer, the Scarpa's fascia. This fascia is opened, and a second layer of fat is encountered in which the saphenous vein is embedded, lying in the saphenous groove. A ligature is placed to the vein for traction downward in order to expose and dissect the saphenofemoral junction. If an aneurysm is present, it is wise to apply a ligature proximal to it before dissecting the aneurysm, otherwise severe hemorrhage will occur. The veins are always tied with double ligatures on both ends with triple knots, using reliable cotton suture material No clamps are used on the veins. As much of the vein as possible is removed in order to avoid possible anastomoses which is another cause for recurrence. All branches are likewise doubly ligated and severed. The wound is closed with interrupted cotton sutures to Scarpa's fascia and mattress sutures to the skin.

One must be careful not to dissect lymph glands and destroy lymphatic vessels which are situated laterally in Scarpa's triangle, for this causes nonhealing of the wound with lymphorrhea and postoperative swelling of the extremity, a serious surgical complication.

The initial pressure dressing is removed on the third day, and the cotton sutures on the fifth day.

For the ligation of the short saphenous vein I prefer a vertical incision, starting behind and just above the knee and extending downward about three or four inches. The fascia cruris is cut and the short saphenous vein is located in a groove between the gastrocnemius muscles where it perforates the deep fascia, and sinks into depth in the popliteal space and bifurcates into two branches. The larger of the two opens into the popliteal vein, while the small branch runs upward to empty into the femoral vein. The short saphenous vein is ligated either at the saphenopopliteal junction or at the saphenofemoral junction depending on the site of the reverse flow. In rare cases both junctions are ligated. The femoropopliteal vein, a tributary, to the small branch of the short saphenous should also be ligated. The wound is closed with interrupted cotton suture to the fascia and mattress sutures to the skin.

The injecting stage of the treatment is started after the sutures are removed. During this time one can see if spontaneous sclerosing has occurred. No solution is injected at the time of the ligation, because in a certain percentage of cases, especially in younger people, the veins will sclerose spontaneously. The materials used for sclerosing are well standardized. I limit the solutions to two, they are sodium morrhuate and synosal. The latter is used in patients who are sensitive to sodium morrhuate which is prepared from the fatty acids of cod liver oil. One must bear in mind that sclerosing will not occur in a vein where regurgitation is still present, as recanalization will result. This is a great cause of failures. Sarma has illustrated that injecting a vein in the presence of a reverse flow is not only dangerous of an embolism, but also worthless as the vein will recanalize. One must be careful not to get spilling of the solution into the tissue, for a local necrotic ulcer will result, and a possible law suit. A spill can be prevented by applying a long, hand-made band-aid firmly over the injection site. The patient is instructed not to remove this for at least three days. Reactions to the injecting solution are limited to an occasional urticarial rash, and 0.5 cc. of adrenalin 1:1000 will abort this reaction. The patient is instructed to wear an elastic bandage immediately following the ligation and to continue wearing it until all veins have been completely sclerosed. After this stage of treatment, I follow all cases with a three-month inspection period for two years. I have been happy with the favorable results obtained by this combined method of treatment in 6,000 ligations, and have had no reason to change the procedure.

Conclusions

IN CONCLUSION, I would emphasize some of the important points regarding varicose veins.

1. Because they are an insidious malady causing disabling complications in the later years of life, loss of limb and loss of life, they should be detected early and properly treated. Early treatment prevents complications and reduces or eliminates the injection therapy.

2. Every patient should be thoroughly tested to determine which vein is causing the regurgitation of blood.

3. Only ligating at the saphenofemoral junction and all the branches will correct the perverted venous circulation.

4. Six thousand ligations have proved that stripping the entire vein and multiple ligations are unnecessary procedures.

5. The surgical ligation is only one part of the treatment, and the treatment is incomplete if it is not combined with sclerosing all varicose veins.

6. All patients should have a two-year follow-up to observe the results and to sclerose any remaining varicose veins.

7. Causes of failure: (a) Not knowing the surgical anatomy. (b) Not taking full interest in the case. (c) Not ligating the proper vein. (d) Not ligating at the femoral junction. (e) Not ligating all branches. (f) Not removing an adequate segment of vein. (g) Not completing the combined treatment.

(4000 W. North Ave.)

References

1. ALLEN, EDGAR V.: Peripheral Vascular Disease.
2. BARONE, A. M.: Multiple Perthes' Test for Segmental Occlusion of the Deep Veins. *J.A.M.A.*, 131:1406, 1944.
3. BARONE, A. M.: Varicose Veins of the Lower Extremity, 1945.
4. OCHSNER, ALTON: Varicosities of the Lower Extremities. Lewis Practice of Surgery.
5. OCHSNER, ALTON, and DEBAKEY, E. G.: Thrombophlebitis: Role of Vasospasm in the Production of Clinical Manifestation. *J.A.M.A.*, 114:117, 1940.
6. SARMA, P. J.: Recurrence and Failures Following the Modern Treatment of Varicose Veins. *Surgery*, November, 1941.
7. SCHIASSI, B.: Modern Italian Treatment of Varicose Veins. *Anti. d. soc. lomb di sc. med. e. biol.*, 17:169, 1928.

The Allergic Employee

FOLLOW-UP STUDIES — THE INJECTED PILOT GROUP

MARGARET S. TENBRINCK, M.D., Medical Dispensary
Metropolitan Life Insurance Company
New York City

IN THE original review of, "The Allergic Employee: Report of a Pilot Study"[1] the subjective improvement reported in questionnaires by the employees undergoing desensitization to specific allergens was discussed. In summary: "It may be concluded that 80% or more of allergic individuals receiving specific desensitization injections regularly can expect improvement in their seasonal or perennial complaints."

In order to arrive at a more objective evaluation of the status of treated cases the present study was undertaken. Individuals receiving pollen extracts through three seasons or perennial allergen extracts for two years were subjected again to the original battery of intradermal skin tests using inhalant extracts in the untreated tissues of the forearms. If they had been symptom-free for the injection period and the skin tests had markedly diminished in size they were discontinued with the provisional diagnosis of "cured." Two of the perennial rhinitis group were discontinued as "failures" as they denied any improvement and their skin tests had never been very significant.

Of the 218 employees retested the largest groups were the fall ragweed pollenosis cases (92) and the perennial dust (and often molds) cases (85) with spring pollen cases numbering 31. The tests were performed by the same person using the same unit strengths of current extracts at about the same time of year. Average diminution in the skin tests of the specific antigens occurred in 73% of the employees. Of the pollenosis cases 19 (or 15%) were discharged as provisional "cures" and the maximum maintenance dosage increased in 88 (about 70%). The provisional "cures" in the perennial group were 45%, leaving only 31% with increased monthly doses. The 15% left with the same dosage were for the most part already on the highest dosage used on this service. The dermatological and neurological cases are too few to be significant. The over-all "Cure Rate" was 30% and the "Failure Rate" 1%.

During the course of injections 11 employees independently and voluntarily discontinued clinic attendance and reported themselves as "cures" without the usual retesting before discharge. They can not be included, therefore, in the group of 218 retested individuals, but are in the following follow-up study of "cured" individuals.

As a check-up to determine if the provisionally "cured" patients had remained asymptomatic and if their skin reactivity to the specific antigens had remained lowered, 71 were called back for testing with the original battery of extracts of the commonly offending inhalants after a rest period of one year or longer. The duration of their original symptoms showed wide variation, and a subsequent "cure" was not influenced by the length of untreated allergic disease. The respiratory group were seen within the first few years, the dermatological cases came earlier, usually within months, whereas the migraine sufferers came after many years of symptoms in another effort to seek relief.

Of 57 with respiratory allergy 41 belonged in the perennial group. After two years of injections 56% showed smaller reactions and after a year's rest period 26% showed further reduction in the size of the skin test. The pollenosis cases showed even greater reduction in the size

TABLE I.
RESULTS OF INTRADERMAL RETESTING AFTER PROLONGED TREATMENT

		Reactions of Repeated Tests—After Two or More Years						Schedule Changes—After Retesting						(Suggestive) Cures or Failures	
		Smaller		Same		Larger		Increase		Same		Decreased			
Types of Allergy	No.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Respiratory															
Seasonal															
Spring	31	20	65	9	29	2	6	21	68	4	13	1	3	5 C.	16
Fall	92	71	77	17	19	4	4	67	73	9	10	2	2	14 C.	15
Perennial	85	61	72	15	18	9	10	26	31	18	21	1	1	38 C.	45
														2 F.	2
Total	208	152	73	41	20	15	7	114	55	31	15	4	2	57 C.	27
														2 F.	1
Dermatological	6	3	50	3	50	0	0	0	0	1	17	0	0	5 C.	83
Neurological	4	3	75	1	25	0	0	1	25	0	0	0	0	3 C.	75
Grand Total	218	158	72	45	21	15	7	115	53	32	14	4	2	65 C.	30
														2 F.	1

TABLE II.
TO SHOW (A) DURATION OF SYMPTOMS PRIOR TO TREATMENT
(B) DURATION OF TREATMENT AT THIS ACTIVITY

Types of Allergy	Number of Individuals	Duration of Symptoms (in years) Under 1 No.	%	1—5 No.	%	6—10 No.	%	11+ No.	%	Length of Treatment (in years)
Respiratory										
Seasonal										
Spring[1]	6	2	33	2	33	1	17	1	17	3
Fall	10	2	20	3	30	3	30	2	20	3—4
Perennial	41	9	22	18	44	4	10	10	24	1—4
Total	57	13	23	23	40	8	14	13	23	
Dermatological	8	5	63	2	25	1	12	0	0	2—3
Neurological	6	0	0	0	0	0	0	6	100	½—3
Grand Total	71	18	25	25	35	9	13	19	27	½—4

1. Two spring pollenosis cases also having fall symptoms are included in the fall tally.

of the skin tests after injections for three seasons: spring pollens 83% and ragweed 90%. After a year's rest period, however, with one exception the tests remained the same size or became larger. This is reflected in the "Reinstatement Rate." For spring pollens 67% were reinstated in injection schedules and for ragweed 20% were reinstated, whereas only 10% of the perennial rhinitis cases resumed injections, because of return of symptoms.

In conclusion, seasonal pollenosis is usually a severer illness which responds well antigenically as well as symptomatically to "desensitization" treatment, but often the immunity conferred is lost when injections are stopped. The perennial rhinitis cases are often of less severity, tolerate larger dosage, and respond more permanently to desensitization. An added factor may be more constant environmental exposure with the stimulation of production of immune bodies in contrast to the shorter seasonal challenge in the pollenosis cases.

In order to eliminate the possibility of "spontaneous desensitization" a group of 23 individuals were called back after a period of two to five years after their original testing. These people had received either no intervening treatment or four injections or less, constituting in one a maximum of 80 units timothy pollen extract. They were questioned and skin tested in the same manner as the injected group. Most important, two had developed asthma during this period; a third in the perennial rhinitis group had been out for three years with bronchosinusitis resulting in bronchiectasis. Of the 23 called back eight discussed reinstatement in the injection group. This is about twice the "Reinstatement Rate" of the relapses in the "Cured Group." Only two, however, started scheduled injections.

Clinically six of the 23 were worse without treatment, and nine out of 23 were unimproved in the passage of years. In the original series reported[1] the "failures" for treatment included those who did poorly, noted no change, or had questionable results. For the different antigens this remained under 20%.

Intradermal skin tests did not become reduced in size in any untreated individual. On the contrary 15 (or 65%) showed an increase in the size and four of the individuals testing the same had marked (+++) or very marked (++++) reactions as well. By comparison, in the treated group (see Table I) 72% of the treated individuals show a diminution in the size of the skin tests.

Thus, in a small, untreated group of 23 individuals spontaneous improvement was reported in only eight. It must be noted that these people

TABLE III.
RESULTS OF RETESTING AFTER PROLONGED TREATMENT
AND DISCHARGED AS "SUGGESTIVE CURE"

Types of Allergy	* No.	Repeated Intradermal Tests—After Two or More Years of Treatment: Smaller No.	%	Same No.	%	Larger No.	%	Not Done No.	%	Repeated Intradermal Tests—After One Year; Without Treatment Due to Suggestive Cure: Smaller No.	%	Same No.	%	Larger No.	%	Not Done No.	%	Resigned or Retired No.	%	Resumed Treatment No.	%
Respiratory																					
Seasonal																					
Spring	6	5	83	1	17	0	0	0	0	0	0	2	33⅓	2	33⅓	2	33⅓	0	0	2[2]	
																				2	67
Fall	10	9	90	1	10	0	0	0	0	1	10	3	30	2	20	3	30	1	10	1[2]	
																				1	20
																				1[4]	
Perennial	41	23	56	13	32	1	2	4	10	11	26	6	15	4	10	16	39	4	10	4	10
																				1[4]	
Total	57	37	65	15	26	1	2	4	7	12	21	11	19	8	14	21	37	5	9	12	21
Dermatological	8	3	37	1	13	0	0	4	50	3	37	1	13	1	13	3	37	0	0	0	0
Neurological	6	2	33	1	17	0	0	3	50	4	67	0	0	0	0	2	33	0	0	0	0
Grand Total	71	42	59	17	24	1	1	11	16	19	27	12	17	9	13	26	36	5	7	12	17

1. Two spring pollenosis cases also having fall symptoms are included in fall tally.
2. Will be reinstated before the next season.
3. Ragweed—"cure" maintained, tree-sensitivity developed.
4. Subsequent prolonged respiratory infections suggested institution of vaccine therapy.

TABLE IV.
INTRADERMAL SKIN TESTS REPEATED IN UNTREATED INDIVIDUALS

Types of Allergy	No.	Time Since Original Tests (years)	Clinical Progress Report			Comparison of Original and Repeated Tests			Number Requesting Reinstatement
			Better	Same	Worse	Smaller	Same	Larger	
Respiratory									
Seasonal									
Spring	4	3,3½,3½,4	1	1	2	0	1	3	2
Fall	5	2,2,4,4,5	1	2	2*	0	1	4	2
Perennial	9	2—5	4	3	2*	0	5**	4	3
Total	18		6 (33⅓%)	6 (33⅓%)	6 (33⅓%)	0	7	11	7
Dermatological	4	3—5	2	2	0	0	1***	3	0
Neurological	1	5	0	1	0	0	0	1	1
Grand Total	23	2—5	8 (35%)	9 (39%)	6 (26%)	0	8(35%)	15(65%)	8(35%)

*One individual had developed frank asthma.
**Three individuals demonstrated marked skin reactions, the same as originally.
***This individual still demonstrated marked skin reactions.

volunteered that much of their improvement was attributed to elimination of positive reactors learned at their original testing (i.e., feathers, pets, orris, foods, etc.) as well as often solving personal and unrelated problems. In no case was there evidence that their allergic state decreased as evidenced by skin reactivity.

Summary

1. Of 218 patients retested 123 were seasonal pollenosis cases (spring, 31, and fall, 92), 85 perennial rhinitis cases, and 10 others.

2. The average suggestive "Cure Rate" was 30% with a marked difference between pollenosis cases (15%) and perennial rhinitis cases (45%).

3. Of the 71 cases retested after a one-year rest period 17% resumed injection schedules. Pollenosis cases were the most labile and refactory to cure, with spring cases 67% and fall 20%. Only 10% of the perennial rhinitis cases started injections again because of recurrence of symptoms.

4. In general, the perennial rhinitis cases were less severe, and were able to take higher dosages of the specific offending antigens, and had a higher "Suggestive Cure," which they maintained after treatment was stopped.

5. Spring and fall pollenosis cases respond well to perennial desensitization care, but are less able to do without continued injections, possibly because of the periodicity of their exposure.

6. Of 23 untreated allergic individuals only eight reported spontaneous improvement. None showed a decrease in skin reactivity for periods up to five years.

Reference

1. TENBRINCK, M. S.: The Allergic Employee, *Indust. Med. & Surg.*, 21:7, 341 (July) 1952.

"Protective and Comfortable"

AS PATIENTS pass before us in our daily practice and we observe the pageant of illness more closely, we become aware that the clinical practice of medicine has changed in the past 25 years. Not so many of these diseases are related to the action of alien, or pathogenic agencies, on an otherwise normal organism. Illnesses now seem to arise from within the very nature of the organism itself and seem to represent some struggle in self-expression or some anomaly of our given biological substratum. The question to consider is not so much the truth of the observation, but why is it so difficult for us to accept it as a discovery? Possibly because we are comfortable in our tradition. A tradition is like a cloister, protective and comfortable. We inherit this tradition from such men as Virchow who taught that there are no general diseases, only diseases of organs themselves; or Pasteur, who had us believe that each disease has a specific cause. It is an historical paradox that the great accomplishments of the past often become an obstacle to further development. There is always an inertia between the discovery of a new scientific truth and its acceptance into scientific work. As human scientists, we categorize our observations according to the scientific philosophy to which we were exposed in our training. We need constantly to revise this trend. Our observations are our greatest teachers.

—From "The Necessity of Illness," by HARRISON SADLER, M.D., in *J. Michigan State M.S.*, June, 1954.

The Prevalence of Certain Diseases Among Executives in Comparison with other Employees

C. A. D'ALONZO, M.D., F.A.C.P., Special Assistant
PAUL M. DENSEN, Sc.D., Assistant Medical Director
Medical Division, E.I. du Pont de Nemours & Company, Wilmington, Delaware
ALLAN J. FLEMING, M.Sc., M.D., Professor of Biometry
MARY GRACE MUNN, B.S., Research Assistant
Department of Biostatistics, Graduate School of Public Health, University of Pittsburgh

THE employment and annual physical examinations have been a significant component of the program of the Medical Division, E. I. du Pont de Nemours & Company, for many years. Since 1939, the information from these examinations has been coded and placed on punch cards. During May of 1953 the Medical Division of the Company, in conjunction with the Department of Biostatistics, Graduate School of Public Health, University of Pittsburgh, began an examination of the data thus collected to determine whether they could aid in defining the health problems of the employed population and in guiding the development of the medical program. The present report on the health of executives is part of this general inquiry.

The essential facts with regard to the prevalence of certain diseases among executives and potential executives in comparison with all employees are set forth in Table I. The figures in the Table refer to the findings of the 1952-53 examinations. They are based on the records of 124 executives—51 in the age group 35-49, and 73 in the age group 50 and over, and on 29,545 employees. This latter figure is so large as compared to the figure for executives that it was not worth while to subtract the latter from the total group of employees.

Stomach and duodenal ulcers are the only diseases for which executives have a definitely higher rate than the employees in general, and this is true only for the age group 50 and over. In the younger age group, the differences could easily be accounted for as a chance phenomenon. This holds true for all of the other diseases noted in the Table, including heart disease, although it is curious that the picture should be so markedly reversed between the younger and the older age groups for this condition. Additional observations should clarify the picture with respect to heart disease. On the other hand, it may be that the younger executives with heart disease do not, so to speak, progress to more executive assignments.

The reasons for the increased prevalence of ulcers among the older executives are not immediately apparent. Whether this observation is due, as is often said, to the demands made of those in executive positions, to dietary factors, to a relative increase in non-company sponsored x-ray studies with a consequently higher rate of detection, or to other factors, can only be ascertained by more detailed study.

The older executives seem to have a higher prevalence of skin diseases. These findings may be more apparent than real since the observed difference could be accounted for on a chance basis.

With respect to the other diseases listed in the Table, the differences between the groups are not more than one would expect by chance when sampling such a comparatively small population.

Conclusion

IN GENERAL, with the exception of the possible increased prevalence of peptic ulcers, there is no evidence in these data that executives of the E. I. du Pont de Nemours & Company are in any worse state of health than other employees of approximately the same age.

TABLE I.
THE PREVALENCE OF CERTAIN DISEASES AMONG EXECUTIVES IN COMPARISON WITH OTHER EMPLOYEES BY AGE
1952-1953

Diseases		Rate per 1,000 Persons: Ages 35-49	Rate per 1,000 Persons: Age 50 and over
Peptic Ulcers	All employees	18.20	23.56
	Executives*	27.40	78.43
Skin Diseases	All employees	56.04	80.36
	Executives*	54.79	117.65
Heart Diseases	All employees	8.93	53.57
	Executives*	27.40	19.61
Hypertension	All employees	42.18	112.84
	Executives*	27.40	78.43
Arthritis and Rheumatism	All employees	16.24	37.23
	Executives*	27.40	58.82
Respiratory Diseases**	All employees	34.02	41.03
	Executives*	41.10	39.22

*Including potential executives.
**Represents respiratory diseases present only during the employment and annual physical examinations, not the total number for a specified time.

General Electric's Schenectady Clinic

Above, left: The new building maintains two ambulances and a special alarm system connected with the plant police station. Above, right: A wide variety of minor injuries and ills are handled in the two dispensaries—there are separate clinics for men and women. Left: Surgical operations are performed only in emergencies and when there is no time to transfer the patient to a local hospital. Right: Lawrence F. Kieringer, GE Industrial Hygienist, conducts an experiment on chemical solvents in the GE Industrial Hygiene Laboratory. Looking on is John J. Ferry, Coordinator of the Laboratory and a chemical engineer. Below, left: Hearing tests are given new employees and periodic checkups are given all employees. Below, right: A technician views an x-ray plate fresh from the developer.

New General Electric Industrial Clinic

SCHENECTADY, NEW YORK

SCHENECTADY General Electric's new million-dollar Industrial Clinic, described as one of the finest plant-medical facilities in the East, was dedicated Friday, July 9, 1954. The Clinic will serve primarily as a center for emergency treatment for injured or seriously ill employees, as a laboratory to study industrial hygiene and working conditions, and as a center for pre-employment physical examinations. Cases involving serious injury or illness will be given emergency treatment and transferred to hospitals in Schenectady and vicinity. Other Clinic features include separate areas for skin and other infections and ear, nose and throat ailments; fully equipped operating rooms for emergencies; x-ray facilities; a clinical laboratory for bacterial and chemical tests; a section for cardiogram studies; a dispensary area; and rooms for physical therapy and medical analysis. Two ambulances will be stationed in a garage built into the first floor. Men and women are to be treated in separate areas of the hospital. The building is air-conditioned throughout.

The modern industrial hygiene laboratory on the second floor will conduct a continuous company-wide investigation of working conditions, solvents, acids, dusts, air-borne contaminants, humidity, noise, illumination, and conditions involved in welding and other processes.

INDUSTRIAL medicine at General Electric had its inception in a medicine chest in the office of the assistant manager of the Schenectady Works in 1894. There is no record of who first suggested the chest, or when it was requested, but on December 4, 1894, G. E. Emmons, then Assistant Works Manager, addressed a letter to one C. Peterson, Esquire, saying: "a medicine chest has been placed in the office of the Asst. Genl. Mgr. of the Works, the contents of which are for the free use of employees in case of accident." At that time, the General Electric Company was officially only two years old and Schenectady was its only plant.

In 1909, a first-aid room was established in the rear of Building 45. The set-up included a waiting room and a doctor's office, although there was no plant doctor. The first-aid station was attended by a hospital corpsman named George Roland, who had been appointed by Emmons, then Works Manager.

The first plant physician was appointed in 1921. He was Dr. D. Glen Smith. Dr. Smith later brought in as his assistant Dr. B. L. Vosburgh. Dr. Vosburgh became head physician in 1928, and served until 1952, when he was appointed Manager of Health Services, a company-wide position.

Dr. W. F. MacDonald, the present plant physician, was appointed in January, 1953. Today the Industrial Clinic has five full-time doctors, two part-time doctors, and 31 nurses and corpsmen. Approximately 85 persons are employed in the new building. Roland employed all male nurses. The first female nurse joined the staff in the mid-1920's, during the administration of Dr. Smith and some years after World War I.

The Industrial Hygiene Laboratory is under the direction of John J. Ferry, an Industrial Hygienist of 20 years experience. Ferry was graduated from Lehigh University, Bethlehem, Pennsylvania, as a chemical engineer. He worked in industrial hygiene research for the Metropolitan Life Insurance Company and the U.S. Army, where he was attached to the Surgeon General's Office in Washington before joining Schenectady GE in 1950.

IF ALL the one-inch, one and a half-inch and two-inch gauze bandage used in the Clinic in 1953 were stretched end to end, it would make a strip 52 miles long. All the gauze used in 1953 for dressing, exclusive of bandage, would cover more than half a square mile. If all the adhesive tape used in the Clinic in 1953 were stuck end to end, it would form a strip two inches wide stretching 18.55 miles. The Clinic used more than 600 gallons of liniment in 1953. If that were gasoline and one averaged 15 miles a gallon, one could drive from Schenectady to Los Angeles three times, or a distance equal to more than one-third the distance around the world.

Training in Occupational Medicine

REPORT OF THE COMMITTEE ON EDUCATION AND TRAINING
INDUSTRIAL MEDICAL ASSOCIATION, 1954

THE REPORT of the Committee on Education and Training of the Industrial Medical Association this year covers two aspects: undergraduate training at the medical student level, and postgraduate training of fellows or residents in occupational medicine. The report gives special emphasis to the undergraduate aspect, and this comprises the bulk of the report. Graduate training, to which previous reports devoted their entire attention, is this year treated with a minor discussion.

Graduate Training

THE PRINCIPAL portion of this section of the report was, as a result of a misunderstanding within the committee, published ahead of time in the April issue of this Journal. The information therein was incomplete as regards two major points. The fellowship program of the Atomic Energy Commission currently supports fellows at four training centers: the University of Cincinnati, the University of Rochester, the School of Public Health at Harvard University, and the Graduate School of Public Health of the University of Pittsburgh. Only the last two were mentioned in the April publication. Besides this, the photographs of only the trainees at Harvard and Pittsburgh were published. This, too, is corrected herein. It is believed that photographs of all other fellows in training have now been included.

The University of California this year joins the ranks of the university centers whose activities in graduate training are regularly covered in these reports.

Undergraduate Training

IN AN EFFORT to learn of the extent of training in industrial medicine at the undergraduate level in the accredited schools of medicine in the United States, the Chairman of the Committee on Education and Training of the Industrial Medical Association designated a sub-committee to explore this subject by questionnaire. Such a questionnaire was prepared, consisting of 23 questions as will be seen below, and submitted to the deans of 63 schools for completion.

Of the group queried, 48 replied, a return of 76%. Questionnaires were sent to schools in 32 states and the District of Columbia, and 28, or 87% of the states, completed the survey forms. The information elicited appears in tabular form, following the individual questions. It will be noted that the number of responses to some of the questions is in some cases less than the total number of respondents (48) given above. Answers to several of the specific questions were omitted by those replying, either by choice, or unintentionally. Multiple answers were possible for other questions, and in such cases they exceed the number of respondents. The questions and an analysis of the responses are shown below.

1. Is instruction in industrial medicine* included in the undergraduate curriculum?

Yes	39	81%
No	8	17%
Planned for next year	1	2%
Total	48	100%

2. If so, in which department are the courses given?

Department of Medicine**	5
Department of Preventive Medicine and Public Health	21
Department of Industrial Medicine	2
Combinations of these and other Departments	11
Total	39

3. How many hours in the sophomore year are allotted to this instruction?

Total number giving instruction in sophomore year (See Table I.)	18
Average number of instruction hours per school	9.6

4. How many hours in the junior year are allotted to this instruction?

Total number giving instruction in junior year (See Table I.)	23
Average number of instruction hours per school	9.6

5. How many hours in the senior year are allotted to this instruction?

Total number giving instructions in senior year (See Table I.)	15
Average number of instruction hours per school	17.4

*This may be listed as industrial health, industrial hygiene, occupational health, or occupational medicine.

**In one school the Division of Industrial Medicine is part of the Department of Medicine, and is so classified here.

Committee on Education and Training: A. G. KAMMER, M.D., Chairman, University of Pittsburgh Graduate School of Public Health; J. S. FELTON, M.D., School of Medicine and University Hospitals, University of Oklahoma; O. T. MALLERY, JR., M.D., Institute of Industrial Health, University of Michigan; L. C. McGEE, M.D., Hercules Powder Company, Wilmington, Delaware; J. WISTER MEIGS, M.D., Department of Public Health, Yale University School of Medicine; I. R. TABERSHAW, M.D., Columbia University School of Public Health; H. A. VONACHEN, M.D., Caterpillar Tractor Company, Peoria, Illinois.

TABLE I.
DISTRIBUTION OF HOURS OF INSTRUCTION IN INDUSTRIAL MEDICINE BY SCHOOL YEAR

No. of Hours of Instruction	Number of Schools			
	Soph. Year	Jr. Year	Sr. Year	All Years
0	18	13	21	0
1	2	0	0	0
2	1	3	1	2
3	2	1	0	2
4	1	1	2	1
5	0	2	0	1
6	3	2	0	3
7	0	0	0	0
8	3	2	1	2
9	1	1	1	1
10	0	3	2	2
12	0	2	0	1
13	0	1	0	3
14	0	0	2	0
15	1	0	0	0
16	1	0	1	1
17	1	0	0	1
18	0	2	0	1
19	0	2	0	2
20	1	1	1	3
22	1	0	1	0
24	0	0	0	2
25	0	0	0	1
28	0	0	0	2
32	0	0	1	0
34	0	0	0	1
36	0	0	1	1
40	0	0	0	1
52	0	0	0	1
61	0	0	1	0
66	0	0	0	1

6. How many hours are devoted to instruction of industrial medicine in all school years?

Total number giving instruction in sophomore, junior, and senior years (See Table I.)	36
Average number of instruction hours per school	17.7

7. Is the instructor a full-time faculty member?

Yes	14	37%
No	24	63%

8. Is the instructor a specialist in industrial medicine?

Yes	23	61%
No	15	39%

9. If instructor is a specialist in industrial medicine, and if he is not a full-time faculty member, what is his occupational connection?

Instructor is full-time in industry	8
Instructor is from a federal government agency	1
Instructor is from a state government agency	1
Instructor is from a city or county government agency	3
Instructor is from an insurance company	1
Instructor is a private consultant to industry	1
Instructor conducts a medical service for small plants	11
Instructor is a private practitioner of medicine	1
Total	27

10. What is the instructor's academic rank?

Professor	18
Associate Professor	13
Assistant Professor	8
Instructor	7
Assistant	1
Lecturer	5
Associate	1

11. Is the title a clinical appointment, such as clinical professor, associate clinical professor?

Yes	8
No	27

12. Are there any other instructors?

Yes	23
No	13

13. If so, how many are there?

Number of Additional Instructors	*Schools*
1	4
2	5
3	6
4	2
5	2
6	1
7	2

Three schools stated that their instruction was integrated into the total curriculum, and did not enumerate the number of instructors concerned.

14. Are the courses elective or mandatory?

Elective	1
Mandatory	36
Elective clerkship, but mandatory lectures also	1

15. What methods of teaching are employed?

Type of Instruction	*Schools*
a. Didactic lectures	35*
b. Field trips	20
c. Seminars	16
d. Presentation of clinical material	15
e. Demonstrations	11
f. Laboratory work	6

16. Is any of the instruction given by personnel other than industrial physicians?

Type of Additional Instructor	*Number of Schools*
a. Attorney	10
b. Chemist	8
c. Dermatologist	10
d. Employer	2
e. Engineer	10
f. Ophthalmologist	3
g. Orthopedist	4
h. Personnel director	2
i. Physiatrist	3
j. Psychiatrist	4
k. Psychologist	4
l. Rehabilitation specialist	8
m. Safety engineer	11
n. Social worker	6
o. Statistician	3
p. Surgeon	5
q. Union representative	4
r. Veterinary scientist	1
s. Professor of social medicine	1
t. Insurance representative	1
u. Industrial commissioner	1

*Didactic lectures were the only method of teaching occupational medicine at 10 schools. All others combined didactic lectures with one or more of the other methods listed.

17. Do any of the basic (preclinical) sciences faculty members participate in the teaching?

Yes	11
No	26

18. Are special assignments such as term papers, plant surveys, or research problems included in the course?

Yes	7
No	30

19. When was the present program started?

Year	*Number of Schools*	*Year*	*Number of Schools*
1914	1	1947	4
1934	2	1948	2
1935	3	1949	3
1936	1	1950	1
1939	2	1951	3
1940	1	1952	2
1942	1	1953	5
1946	4	Gradual	1

20. Is the course of instruction described in the bulletin of your school?

Yes	20
No	19

21. Is there a student health service, or employees' health service within the hospital structure?

Yes	37
No	3

22. Is this facility being used for clinical teaching in industrial medicine?

Yes	6
No	33

23. Are there any features of the instruction in industrial medicine that are unusual, or made possible because of location or other factors?

Yes	12
No	21

Comment

THE REPLIES as given above speak for themselves. The one point that recurred among those respondents declaring themselves unable to complete the questionnaire, in part, or in toto, was that of "integrating" the teaching of industrial medicine into other portions of the curriculum. The relevant comments have been extracted from the replies of this group, as follows:

Candidates for Degrees

Lt. Col. John Norton, USAF
M.D., U. of Chicago, 1937
Master of Public Health
U. of California, 1954

Helen Schiel Compton
M.D., U. of Cincinnati, 1927
Doctor of Industrial Medicine
U. of Cincinnati, 1955

Robert T. P. deTreville
M.D., Med. College of S.C.
Doctor of Industrial Medicine
U. of Cincinnati, 1956

John Carpenter Duffy
M.D., Stanford U., 1947
Doctor of Industrial Medicine
U. of Cincinnati, 1954

Ralph Woodworth Haswell
M.D., U. of Rochester, 1947
Doctor of Industrial Medicine
U. of Cincinnati, 1954

Benjamin Kaplan
M.D., U. of Illinois, 1935
Doctor of Industrial Medicine
U. of Cincinnati, 1956

Charles W. Kraul
M.D., U. of Pennsylvania, 1944
Doctor of Industrial Medicine
U. of Cincinnati, 1954

Hallett Adams Lewis
M.D., U. of Cincinnati, 1946
Doctor of Industrial Medicine
U. of Cincinnati, 1955

School C: "Industrial medicine is incorporated by horizontal integration by being included in the normal curricula of the various departments concerned."

School I: "Industrial medicine is integrated into other subjects. Various members of the faculty instruct this compartment of knowledge as it falls in their specialties. We do not have an instructor for this subject alone."

School J: "All of these departments, medicine, surgery, preventive medicine, when they have patients with some industrial aspect call attention to it."

School K: "All departments teach some aspects of medicine related to occupation and industry . . . . a good program in Industrial Medicine should be a post graduate medical program."

School M: "Some effort is made by the clinical faculty as part of medicine, surgery, and other specialties."

School X: "It is impossible to segregate and specify the hours spent in teaching industrial and occupational medicine. Most of them are an intimate part of and integrated with other standard courses such as orthopedic surgery, dermatology, ophthalmology, internal medicine, medical jurisprudence, surgery and neuropsychiatry. To some extent this is also true for fundamental instruction provided by the pre-clinical departments, particularly pathology, biochemistry, bacteriology, physiology and toxicology.

"Actually only six didactic hours are devoted to pure industrial medicine as such. If all industrial medicine integrated by all departments into their routine curricula were estimated, it might add another one or two hundred hours to the total."

School EE: "At the University of *EE* there is no one department that accepts the responsibility for instruction in this field. A student is introduced to the problems by very comprehensive lectures in toxicology given by the Department of Pharmacology. . . . It is not possible to specify the number of hours of clinical instruction that the student may receive because this will depend upon the number of patients with typical occupa-

Candidates for Degrees

Leo J. Miedler
M.D., Wayne U., 1951
Doctor of Industrial Medicine
U. of Cincinnati, 1956

Lee Hutter Miller
M.D., U. of Pennsylvania, 1947
Doctor of Industrial Medicine
U. of Cincinnati, 1954

James D. Thornton
M.D., Johns Hopkins, 1948
Doctor of Industrial Medicine
U. of Cincinnati, 1955

William G. Thuss, Jr.
M.D., U. of Maryland, 1948
Doctor of Industrial Medicine
U. of Cincinnati, 1956

John T. Wilson, Jr.
M.D., Columbia U., 1950
Doctor of Industrial Medicine
U. of Cincinnati, 1956

John F. Ziegler
M.D., U. of Chicago, 1952
Doctor of Industrial Medicine
U. of Cincinnati, 1956

Bernabe Lima-Baez
M.D., U. of Louisville, 1947
Master of Industrial Medicine
U. of Rochester, 1955

John Anthony Palese
M.D., U. of Wisconsin, 1948
Master of Industrial Medicine
U. of Rochester, 1955

tional diseases who may be in the hospital during his clerkship."

School HH: "The many facets of this phase of medicine are included as an integral part of the curriculum throughout the four years."

One wonders if the above indicates a trend toward a most desirable method of introducing industrial medical teaching, or does this represent a peculiar feeling of academic self-satisfaction that allows its possessor to believe that all is being done that should be done? The question that arises is merely this: Does this program of integration offer the prospective practitioner the appropriate attitudes and understandings of in-plant medical problems so that he may do a better job with his employed patients? Many of the replies indicate a belief that a study of industrial medicine is a perusal of toxicology and an exploration of traumatic surgery. When will these reference points in this area of instruction be reoriented to embrace a feeling for administration, psychological medicine, rehabilitation, and other important components of industrial medicine?

Certain methods of training seemed particularly outstanding—methods that could spark some student enthusiasm for industrial medicine. In School *Z* a Fourth Year In-Plant Session on Industrial Health is conducted twice a year for a three and a half day period each, one-half of the senior class attending one session. The schedule for such a session was in essence as follows:

WEDNESDAY

8:50 A.M. Report to tour director of Plant No. 1.
9:00 A.M. Professor of Preventive Medicine: *Plan and Purpose of the Sessions.*
Personnel Manager: *Welcome.*
9:20 A.M. Dean: *Introduction to Medicine in Industry.*
10:00 A.M. Medical Director of Plant: *The Present Day Significance of Industrial Health. The Problem of Noise.*
Round Table Survey: Four industrial physicians and audience.
12:00 NOON Lunch period.
1:30 P.M. Assemble outside of Plant No. 2.
3:00 P.M. Reassemble at Plant No. 1.
Industrial Health Consultant: *Review of Important Toxic Substances Encountered in Industry*—Toxic Dusts and Fumes (Lead, Cadmium, and Mercury), Toxic Vapors (Chlorinated Hydrocarbons, Organic Phosphates), and Gases (Carbon Monoxide, Methyl Chloride, Hydrogen Sulfide, Arsine, and Phosgene).

THURSDAY

8:50 A.M. Tour of Plant No. 1.
11:00 A.M. Production Superintendent: *The Packing Industry's Part in Protecting Employee and Public Health.*
Assistant to General Product Controller: *Federal Meat Inspection and the Public Health.*
12:15 P.M. Lunch Period (Guests of the Company).
1:30 P.M. Representative of Workmen's Compensation Division: *The Industrial Commission of Wisconsin.*
2:00 P.M. City Commissioner of Health: *The Health Department's Contribution.*
3:00 P.M. Personnel Manager: *Problems of Human Adjustment to Occupation.*
4:00 P.M. Informal Discussion Period.

FRIDAY

8:50 A.M. Dermatologist: *Occupational Dermatosis.*
10:00 A.M. Associate Professor of Veterinary Science: *Human Disease of Animal Origin.*
11:00 A.M. Assistant Secretary, State Medical Society. *The Relation of County Medical Societies to Local Industrial Plants.*
12:00 NOON Lunch Period.
1:15 P.M. Tour of Machinery Operations, Plant No. 3.
3:00 P.M. Industrial Consultant: *Dust Diseases of the Lungs.*

SATURDAY

9:00 A.M. Meet University Hospital's Cardiologist: *The Cardiac in Industry.*
Review of Session.

(During the Sessions additional reference materials such as journals, industrial commission regulations, etc., were available for review.)

A second plan of interest was reported by School *CC*. Here, the Employees' Health Service is under the direction of the Assistant Professor of Preventive Medicine, and 10 junior students are attached to that Service at all times. Externe training is under the direction of the Associate Professor and two Instructors, and is given at an aircraft plant. In 1953, 63 externes had this service. This same combination of training sites is used for a resident training in industrial medicine—one-half of the service being spent in medical specialties at the University Health Center, the other half at the aircraft plant. One junior and one senior assistant resident have been appointed for 1954.

At one eastern university, School *FF*, formal organized instruction is available as follows: In the junior year each student spends one week assigned to the Department of Preventive Medicine and Public Health. One day of this period, with a group of three other students, he visits an industrial medicine installation where he is received by the Medical Director who outlines briefly the medical program of the department being visited. With the Medical Director and a safety engineer he tours representative portions of the plant. He inspects the Medical Department and spends the rest of the morning in a seminar-type meeting with the physician to discuss the tour. In the afternoon another seminar is held with the Assistant Professor of Occupational Medicine at the medical school during which time the morning activities are reviewed and the interrelations of occupation and health are discussed. On another afternoon in the week the students visit a union medical center which provides opportunity to learn of labor's interest in preventive medicine in industry. During the final afternoon of the week, the week's activities are reviewed in round-table discussion with the professor and head of the department, and occupational medicine is discussed in detail. In the spring term of the same junior year, students are given a series of 12 didactic lectures in occupational medicine. Between the junior and senior years the incom-

ing senior students spend six weeks in a summer "clerkship or junior internship." These clerkships are in occupational medicine and in the past few years an increasing number of students have applied for the clerkships and they have been assigned to industries locally which welcome their presence, and compensate them for the time spent —which is often the full 12 weeks rather than the required minimum of six. Clerkships are currently available to 15% of the class, and application has been received from 12 students to date.

In one other training situation at School *NN*, group project leaders are assigned who are Medical Directors of local manufacturing plants. Each project leader has a group of six junior students for six three-hour periods during which time the students visit the plants. The three groups combine on one-and-a-half hour presentations of industrial medicine to the class as a whole. Each project leader has a second group of six juniors for five three-hour periods.

An interesting note is offered by School *SS* which reads as follows: "Our Department of Environmental Medicine and Community Health has in the past sponsored field trips to compensation hearings, management sponsored and labor sponsored occupational health programs, but has, for the present, discontinued all three. There is acceptance of the idea of value in such field trips but in our particular experience, the quality desired in such instruction was difficult to sustain."

A comment in connection with question 19 relating to the date of origin of the program, stimulated some thinking, for the school representative completing the questionnaire states that the program "changes every year."

A few of the schools replying felt that in answer to question 23, "Are there any features of the instruction in industrial medicine that are unusual, or made possible because of location or other factors?" a few unusual features were present. One school commented that observation of rehabilitation procedures was facilitated by its proximity to a large rehabilitation center where both medical and vocational rehabilitation could be seen simultaneously. In one other installation considerable arthritis was encountered from patients in industrial areas. The same school felt that its proximity to the national Institutes of Health was a desirable feature.

One school in the southwest believed its training was augmented by being in the heart of the petroleum industry and another in the steel area considered its location to be of worth. The only other positive comment relative to the question was that one school was situated close to a union health center which made visits possible.

Summary

IN REPLY to a questionnaire forwarded by the Committee on Undergraduate Training in Industrial Medicine of the Industrial Medical Association, 76% of the schools returned completed questionnaires, representing a response of 87% of the states involved.

Currently 39 medical schools are offering formal instruction in industrial medicine and the majority of the schools are giving this training in the Department of Preventive Medicine and Public Health. The average number of instruction hours in the sophomore year is 9.6, with a similar figure for instruction in the junior year. In the senior year 17.4 represents the average number of instruction hours per school and the average figure for industrial medicine training in all years was 17.7 hours per school. In only 37% of the schools replying was the instructor a full-time faculty member, but 61% of the instructors were specialists in industrial medicine. Those faculty members instructing in occupational medicine and who were not on a full-time basis came from industry, government agencies, insurance companies, or served as consultants to large and small plants.

The majority of the instructors were of professorial or associate professorial rank, and in all cases but one, the courses were elective instead of mandatory. Most of the training included didactic lectures, field trips, seminars, presentation of clinical material, and demonstrations, with perhaps six including laboratory work. In less than a third of the schools was there any participation in the teaching by basic sciences faculty members, but seven of 37 schools replying had special assignments as part of the instruction, such as term papers.

The oldest instruction program dated from 1914, and all of the remaining have been added to the curricula from 1934 to the present year. Twenty-four of the schools now carry programs created since the close of World War II.

Only six of the schools are using the employees' or student health service for clinical teaching in industrial medicine, and a few outstanding programs were reported in some detail where the field portion of the study was of particular merit.

Worth Repeating

I BELIEVE forward-looking businessmen are coming to recognize a close tie-up between industrial and community health. A company can have the best in-plant medical service and still have a lot of absenteeism if the town drinking water is unsafe, or if tuberculosis is not checked, or if food-handlers are not inspected regularly, or if venereal disease is not controlled, or if housing is inadequate, or other similar faults exist.

—DAVID E. WILLIAMS, at Founders' Day Program, Health Assurance Forum, Woman's Medical College of Pennsylvania, Philadelphia, March 11, 1954.

Occupational Health on Radio

Health Forum — Employee Health, Industrial Wealth

STATION WOR, NEW YORK CITY
May 9, 1954

ON INCREASING numbers of occasions those engaged in occupational health are importuned to appear on radio programs, the representation being made that occupational health has outstanding appeal. More often than not those approached, activated by a mite of panic, reject the invitation thus losing an opportunity for the laudable promotion of a worthy topic replete with potential drama.

In New York City, in May, by arrangement four representatives of national associations engaged in occupational health, three of them Presidents of their organizations, assembled and staged a radio program. It was no spontaneous affair. For weeks ahead this program carefully was planned and prepared. In presenting the script below as used, the emphasis is not upon the scientific quality of the statements made, all statements being above reproach, but on the fact that occupational health radio programs are taking place in several centers and on fairly frequent occasions. For any such program to be successful, carefully prepared script is essential, together with rehearsals and coordination. The hope is that this script may be valuable to others called upon to participate in radio or television programs, revealing as it does the type of general material which by experience is adjudged well suited to a radio audience. While this particular program through intent was not aided by visual aids, apparatus, etc., it is well known that specific topics such as carbon monoxide poisoning, or silicosis, or the history of phosphorus poisoning ably are served by the presence of instruments, x-rays, photographs, charts, and other items of visual appeal. For whatever help it may be in the preparation or direction of any other program on occupational health, the text of the "Health Forum—Employee Health, Industrial Wealth," broadcast of May 9, 1954, from Station WOR, New York, is here introduced:

PARTICIPANTS—Announcer, Doctor, Nurse, Hygienist, Dentist.

ANNOUNCER: Today, industrial leaders realize that the health of employees, both on the job and at home, is important to the success of the company. But more important still is the individual happiness and success of the 66 million employees in industry. That's why most alert companies have established industrial health departments. To study ways and means of bringing better health to every worker in our country, physicians in industry, nurses, hygienists and dentists met in Chicago in April at the annual Industrial Health Conference to discuss new methods of protecting employee health. We've invited people from each of these professions to be our guests today because of the important work they are doing. We have here in the studio DR. R. C. PAGE, President, Industrial Medical Association, and Trustee, Occupational Health Institute; MISS SARA P. WAGNER, President, American Association of Industrial Nurses; MR. HERBERT T. WALWORTH, President, American Industrial Hygiene Association; and DR. LEONARD S. MORVAY, American Association of Industrial Dentists. Industrial health is a full-time career for each of our guests. Now, briefly, let's establish what each of you do in industry. DR. PAGE, you carry on a constructive health maintenance program for employees. This calls for periodic medical examinations, does it not?

PHYSICIAN: Yes, we consider this a positive approach to health; a conscientious effort on the part of all members of the health team to keep the vertical patient vertical. It is constructive medicine actually.

ANNOUNCER: What do you mean by keeping the vertical patient vertical?

PHYSICIAN: Just as the phrase expresses it. Industry is only interested in the healthy worker and the healthy worker has to be vertical.

ANNOUNCER: I see. And MISS WAGNER, you nurses assist the physician, I imagine, and give emergency aid, in case of illness or accident?

NURSE: That's right. And much more. The duties and responsibilities of the nurse in industry are many—dependent, of course, upon the type of medical service provided by management. In 70% of the industries in the United States the nurse either works with only part-time medical supervision or alone. Here her duties are strictly nursing. In a well organized health service her functions are greatly expanded.

ANNOUNCER: MR. WALWORTH, I don't think many people know just what a hygienist is. Can you help us out?

HYGIENIST: Certainly. The industrial hygienist is mainly concerned with the worker's environment. In a sense we engineer the working environment for health maintenance.

ANNOUNCER: And dentistry in industry—frankly, that's a new one to me.

DENTIST: It IS a new one. Dentists have only been in industry for the past 11 years. The dentist's work, like the physician's, is largely preventive. They try to spot little dental troubles before they become big ones.

ANNOUNCER: I see. Well, it's clear that you each have your own "departments" so to speak, in the over-all health picture in industry . . . yet you work together as a team. Tell me, does practically every large firm have an Industrial Health Department these days.

PHYSICIAN: Yes, and many smaller ones as well. As a team we do everything possible to safeguard

health. The theme of our Chicago Industrial Health Conference I believe expresses our over-all purpose very well, and I quote, "Our greatest industrial wealth is employee health," and our job is to protect this fundamental asset by all methods and tools at our disposal.

NURSE: The Medical Departments of today sprang from mighty small beginnings. They started out as first aid stations. Now we have programs that include illness and accident prevention, health and safety promotion, care of the sick and injured, and preventive and constructive medicine.

DENTIST: In fact, I've heard it said that the interest in industrial health parallels the growth of American industry.

HYGIENIST: I think the war, especially, gave us a new appreciation of the value of health protection for industrial workers. In other words, the war gave impetus to the program of Industrial Hygiene which had been practiced for many years.

ANNOUNCER: Would you go so far as to draw a parallel between the health of the nation and the health program of a modern corporation?

PHYSICIAN: *I* would. It is an accepted fact that any nation is as strong as its citizenry. Likewise, industry is only as strong as its employees.

ANNOUNCER: Then, just what are the main objectives of an industrial health program?

PHYSICIAN: There are several: to promote and improve the health of the employed person by improvement of the working environment; to prevent occupational disease by health education; and to teach the employee to live within his mental and physical handicaps.

ANNOUNCER: I see you all agree. DR. PAGE, would you say most industries have full-time doctors and nurses?

PHYSICIAN: Many start on a part-time basis. Even a very small company can and should have a part-time physician and full-time nurse. An arrangement with a nearby physician or nursing center for part-time service is a most acceptable approach to the problem. Some industries pool resources. Others arrange for a nurse or a physician to spend a few hours each day at the plant. Some have industrial hygienists as well as a dentist on a part-time basis, depending upon local needs and conditions.

ANNOUNCER: Do you feel your department has an important influence outside the plant itself?

NURSE: Yes, I do. The workers learn a lot about health. They take these ideas home and I am sure that many practice the health measures they learned from the nurse. Many times the wives of employees call up for advice.

PHYSICIAN: A constructive health maintenance program unquestionably has a beneficial effect outside the plant. The private practicing physician, particularly, is appreciative.

NURSE: There are a number of plants that have visiting nurses too. Management arranges for nursing care and other appropriate assistance for employees who are ill at home.

ANNOUNCER: MISS WAGNER, you say you find a real sense of satisfaction in your work as an industrial nurse. How so?

NURSE: The nurse in industry has many satisfactions and challenges. She has an opportunity to help people in so many ways—the opportunity to exercise skills not used in other types of nursing.

ANNOUNCER: Explain, if you will.

NURSE: Well, for instance, one day a couple of months ago one of our girls came in to us complaining of headache, vomiting and stomach distress over a period of time. We talked to her sympathetically and finally we found that she was greatly upset over some home affairs. In fact, she was so on edge that she was making mistakes in her work, and worrying about not doing her job well. We recommended that she go to see her family physician and at the same time referred her to a community agency. She received medical treatment from her doctor and the community agency ironed out the home situation. And, today she is back on the job—a far healthier, happier girl.

HYGIENIST: Then you were instrumental in seeing that she had early medical attention and received help from the agency?

NURSE: Yes, the emotionally disturbed worker is a big problem in industry today. Nurses do all they can to help. Their one big job is to counsel employees. The nurse acts as a sounding board. She does everything to instill confidence so that the employees will come to her with their troubles.

ANNOUNCER: And *do* they come?

NURSE: Yes, they bring all sorts of problems, sometimes even ask about baby care. The nurse provides all sorts of health information.

ANNOUNCER: What are some of the qualifications of an industrial nurse? What sort of person should she be?

NURSE: To do a really good job in industry the nurse needs to have many qualifications. She should have good health, be emotionally stable, she should have a sincere liking for people, have an open mind, be readily adaptable, use good judgment at all times, be well poised, friendly, a good listener, and have a heart for her work.

PHYSICIAN: Her professional background is particularly important, is it not?

NURSE: The nurse in industry should be a graduate of an accredited school of nursing, licensed in the state where she is practicing, and, if possible, have had a special course in industrial nursing.

DENTIST: Doesn't your Association help in the training of industrial nurses?

NURSE: Yes, it does in many ways. One of the primary purposes of the American Association of Industrial Nurses is to define functions and develop standards of nursing practice and service. The Association helps to develop institutes, workshops and symposia with universities and colleges. It keeps a current list of schools and colleges where postgraduate work can be obtained; publishes a monthly journal for its members which provides a continual source of current knowledge and reports on industrial health; maintains a current bibliography of literature, and employs a field consultant to assist the individual nurse with her working problems.

ANNOUNCER: We mentioned the prevention of sickness. Just what do you do to educate?

NURSE: Every activity the nurse performs provides her with a teaching opportunity. She advises continually on nutrition, recreation, personal hygiene, and cooperates with health agencies in the community through participation in tuberculosis surveys, and diabetic and cancer detection surveys.

ANNOUNCER: I was just thinking, as you told all the things you do, that you're a sort of middle-man, or I should say middle-woman, between management and the employee, aren't you?

NURSE: The nurse is a confidante of both management and the employee. She has an obligation to minister to all equally. Every person who comes to the Medical Department is treated with the same

consideration, whether he be top management or the office boy. The only time when she might appeal to management in the interest of the employee is when she feels that management's decision is bad for the employee's health.

ANNOUNCER: You said before that you work closely with the physician. Is there ever a problem of drawing the line between the nurse's function and the physician's in industry?

PHYSICIAN: No. The doctor and nurse in industry now work together as a team each one performing the functions for which they are best trained. The doctor actually carries on where the nurse in industry leaves off. The nurse plays a most important role because she is in daily contact with so many employees who frequent the medical dispensary for minor illnesses and complaints.

NURSE: Speaking for the nurse—she is employed solely for nursing duties. As a member of the health team, the nurse shares the responsibility for planning the health program and making policies for its operation. She makes recommendations regarding nursing activities and provides for adequate nursing service. Of course, if there is no full-time industrial physician, the nurse must handle procedures for common minor conditions and provide emergency care in the more serious or complicated conditions until the physician arrives.

DENTIST: Actually, the nurse is the physician's *ally*, isn't that right?

NURSE: Yes, indeed. Her close contact with the workers helps the physician to record total environmental histories. Her ability to evaluate the character and importance of symptoms and record them properly is vital to him in the interest of his work.

ANNOUNCER: I see. Now, DR. PAGE, what about your role. You say your field has to do with constructive medicine. Just exactly what do you mean by constructive medicine?

PHYSICIAN: Constructive medicine has to do with the early detection of disease—detection at a time when something positive, constructive and curative can be done about it at a price the employee can afford to pay. Perhaps I can illustrate by telling you about an individual case which came to my attention only a short time ago. A man was sent to my Medical Department for supposed work inefficiency. He could not get along with anybody. He complained that there was too much noise—that he had to speak very loudly in order for his fellow employees to hear and understand him. When a thorough medical examination was performed it was ascertained that this man had difficulty in talking; that it hurt him to talk. He never told anyone this. The examination revealed a small growth on his vocal cords. When this was removed he was able to talk normally again. After a few weeks his whole personality changed and he was back on the job as an efficient employee. There was no difficulty in explaining all this to his employer without divulging the strictly confidential aspects of the problem. This, I am sure you will agree, represents a situation whereby a single thorough medical examination revealed a condition which caused an employee's progress to be retarded. A simple operation made a new man of him.

NURSE: Doctor, you saved him serious complications, a lot of suffering, perhaps even his life.

PHYSICIAN: Well, this is an actual example of one of our main objectives, namely, the prevention of more serious illness.

ANNOUNCER: Then constructive medicine really is an important field in itself.

PHYSICIAN: I should say so. Take tuberculosis, for example. Tuberculosis in its earlier stages can only be detected by a thorough periodic health inventory. This also applies to cancer, particularly of the chest.

ANNOUNCER: Lung cancer is certainly in the news these days, isn't it?

PHYSICIAN: That's true, and periodic x-ray of the chest is the only means of early detection; detection at a time when the surgeon can be of real help by complete removal of the growth before irreparable complications have developed.

ANNOUNCER: DR. PAGE, these health examinations, do they often disclose conditions patients may not be aware of?

PHYSICIAN: Very often many minor conditions are detected. This is when constructive medicine can do its best work. Even the presence of minor abnormalities is explained to the employee in detail. When treatment is indicated he is encouraged to consult his private physician for further advice and guidance.

NURSE: Don't you think, too, Doctor, that these examinations help to give the person a picture of his own health status? Then when the time comes for a promotion or transfer he is in a better position to make wise decisions, to weigh his personal well being in relation to bigger responsibilities.

PHYSICIAN: That is very true, MISS WAGNER. Both management and the employee are daily becoming more appreciative of this fact.

ANNOUNCER: What about the handicapped. Do they really find a place in industry today?

PHYSICIAN: The word handicapped is really a misnomer. If the polio patient, the blind, the paraplegic, the cardiac, the epileptic, the sufferer from spastic paralysis is properly placed, he will invariably do a better job than the so-called "normal employee." There is actually less absenteeism among them than other workers. In general they are more conscientious and efficient,

DENTIST: I think our health services do a wonderful job of fitting them to the right work.

PHYSICIAN: Well, we try to consider not the handicap but the *residual* ability. That is, what he can do with what is left. Working unquestionably makes a difference in these people. It changes their outlook on life. They actually contribute much to industry because many of them are highly skilled.

ANNOUNCER: You mentioned cardiacs. Do you try to detect these conditions as well as aid in their proper placement?

PHYSICIAN: That's where the periodic health inventory comes in again. The only possible method of detecting heart disease in its very early stages is by the performance of a thorough periodic health inventory. Actually the early symptoms of heart disease are nature's way of making a person stop, look and listen.

HYGIENIST: Don't you find there's a health job to be done when a person grows older, too?

PHYSICIAN: Yes, indeed. The proper handling of aging persons is extremely important. Medical advances, as you well know, during the last two decades have already added years to life. Now, we must add life to years. Our job is to show the aging person that aging in itself is a normal process and that certain physiological changes are inevitable. We explain these factors so that the individual in question can personally understand them.

ANNOUNCER: Haven't I heard that you check your employees to be sure it is safe for them to come back to work after an illness, too?

PHYSICIAN: This is routine in a positive constructive health program as advocated by the Occupational Health Institute.

DENTIST: I should think that would help speed their recovery, wouldn't it?

NURSE: Of course, because they feel more useful to society. It improves their mental attitude. Sometimes it is impossible for them to go back to their routine job, but they can be assigned to a job with less exertion until their health is normal.

ANNOUNCER: What about injuries on the job, DR. PAGE?

PHYSICIAN: Safety engineers do everything possible to prevent accidents. However, invariably the human factor is involved. Actual treatment within industry is confined to first aid, which in itself is extremely important. Employees, in fact, are urged to come to the health department even with a scratch.

NURSE: The record of that scratch is very important both for the employee and the employer, particularly if complications occur. If it is classified as industrial it might become a compensation case.

ANNOUNCER: Speaking of injuries, we have been hearing a lot lately about organizing in case of disaster. What role would the industrial health department play in disaster control?

PHYSICIAN: A well organized industrial health department can act as the captain of a team, a central control point which would work in strict coordination with outside medical facilities located in the general area. They would be prepared to render the very highest type of emergency first aid care.

ANNOUNCER: Is alcoholism a problem in industry?

PHYSICIAN: Yes, it is. Again, early detection is the only answer for maximum benefit to the family, the employer, and the employee himself.

NURSE: Nurse and physician both help by recognizing the situation, by being understanding, and trying to get to the root of the problem.

ANNOUNCER: What have physicians in industry been doing along the lines of lung cancer research, DR. PAGE?

PHYSICIAN: Wherever there is a potential hazard, the physician in industry, the industrial hygienist, working as a team with other scientists, explain the entire situation to management, and it, in turn, does everything possible to eliminate the hazard by engineering methods and means—the health team performing periodic health inventories as an additional check, with employees' personal health maintenance being the primary concern of all.

ANNOUNCER: I understand there's a growing trend for industrial dentists to join hands with physicians and nurses. Is that right, DR. MORVAY?

DENTIST: Yes, there are now approximately 300 dentists in industry.

ANNOUNCER: I've heard it said that you industrial dentists are on the spot check line. Is that right?

DENTIST: Yes. We help discover spots or cavities and other diseased conditions of teeth and gums. Also erosions due to atmosphere contamination, such as acids in the air.

ANNOUNCER: Do you extract teeth and fill them, then?

DENTIST: No, we refer the employees to their own dentists. But, by finding troubles, the dentist saves a lot of dental expense later on. We confine our work to periodic examinations, emergency treatments, x-rays.

ANNOUNCER: You said you work closely with the industrial physician. How so?

PHYSICIAN: Many early indications of certain diseases can be found by examining teeth and gums periodically.

ANNOUNCER: For instance?

DENTIST: Leukemia and lead poisoning can be spotted often by the condition of the gums. Rheumatism and arthritis are often caused by ulcerated or infected teeth.

NURSE: Teeth in themselves can be a major cause of absenteeism. Isn't that right, DR. MORVAY?

DENTIST: Definitely. An employee will stay home with a swollen jaw or toothache, try to treat it himself. Then the condition recurs later. In the end, the tooth probably will have to be extracted. If there's an industrial dentist, much less time will be lost. I would like to cite the case of the Rehabilitation Commission of the State Department of Labor and Industry in New Jersey. They had a case with a fractured leg which showed very slow signs of callous formation. The Rehabilitation Commission, through a dental consultant, agreed to the removal of some defective teeth, thus building up the resistance of the employee. It was but a short time following the removal of the dental foci of infection that improvement was noticed and rapid recovery followed, thus reducing lost man-hours.

HYGIENIST: Haven't you found, Doctor, that these communications and consultations with the employees have an effect on the community dental health, too?

DENTIST: Yes. The employee takes the dental message home, discusses his problems, and interests other members of the household in their particular dental problems. They in turn become dental-conscious and visit their own dentist for treatment. That way the dental health of the community improves.

ANNOUNCER: What is the reaction of the local dentists, then, to dental departments in industry?

DENTIST: They welcome them. It not only decreases their educational work, but also makes the population dental-minded. Patients keep appointments, value their dental services.

ANNOUNCER: No wonder you industrial dentists play an increasingly important part in the over-all health picture! But now, MR. WALWORTH, what about you? I understand you often act as the trouble-shooter for industry.

HYGIENIST: Yes, we are familiar with working environments which affect the worker's health and welfare, and provide industry with necessary controls for health protection. For example, silica was formerly used in grinding operations. Carborundum or some other substitute is now used. Silica causes silicosis. Hygienists pointed it out and management made the switch.

DENTIST: Didn't the handling and mixing of paint cause a poisoning, once upon a time, too?

HYGIENIST: Yes, lead poisoning. That happened in ceramic plants. Lead is no longer used in most paint.

ANNOUNCER: How do you mean?

HYGIENIST: Many industries have made changes of this nature. For example, several years ago fluorescent tubes contained a poisonous material, beryllium. If the tube broke and the worker cut his hand, it was dangerous. Lung tumors could result when workers used this material in the manufacture of the tubes. Now the tubes contain a non-toxic substitute.

NURSE: That's all under the heading of toxicology, isn't it?

HYGIENIST: The toxicologists did an excellent job in solving this problem. This is only one of the specialties which make up the American Industrial Hygiene Association.

ANNOUNCER: Such as?

HYGIENIST: Air pollution; chemistry; engineering; radiation; toxicology.

ANNOUNCER: Radiation is practically a household word today. What are some of the hazards?

HYGIENIST: Hazards in industry include: industrial x-ray; Co_{60}; static eliminators; radioactive isotopes.

ANNOUNCER: And what are some of your safety precautions?

HYGIENIST: We, of course, measure exposures to atmospheric contaminants in industry and, depending upon the extent of exposure, suggest necessary controls.

NURSE: I have noticed that hygienists do a lot of testing.

HYGIENIST: Yes. We sample air inside of plants or wherever potential hazards develop.

ANNOUNCER: I'm curious. What do you test for, in the air?

HYGIENIST: Gases, metal fumes, dusts—anything that might be harmful to exposed workers.

ANNOUNCER: Does this have anything to do with smog?

HYGIENIST: It can.

ANNOUNCER: Do you think pollution is a contributing factor to lung cancer?

HYGIENIST: I think DR. PAGE will agree that we can't say for sure. But we do know that air pollution contributes to a number of lung ailments.

PHYSICIAN: Industry can and *does* do something about the toxic effect of smoke and fumes and gases that factories cast off.

HYGIENIST: Yes, indeed. Studies have been done by hygienists in Chicago, Los Angeles, Pittsburgh, and other cities with special smoke and atmosphere problems.

ANNOUNCER: Then your work actually carries over outside of industry.

NURSE: It certainly does. It even goes so far as to help the housewife to buy fruit and vegetables in safety.

HYGIENIST: The control of lead arsenate sprays on fruits, for example, was the result of a cooperative job of industrial hygienists, physicians, and others.

NURSE: But it is still a good idea to wash apples, carrots and lettuce thoroughly.

HYGIENIST: The industrial hygienist also tests products before they're distributed to the public and sees that dangerous chemicals are labeled, giving general precautions.

ANNOUNCER: MISS WAGNER tells me you even help keep the housewives' hands soft and white!

NURSE: The hygienists have helped manufacturers produce protective creams for use in plants. These are good for industrial use to prevent dermatitis and also for the housewife with tender skin.

DENTIST: Actually it's safer to work in an industrial plant today than it is to stay home!

HYGIENIST: Absolutely! The industrial hygienist comes into the picture by measuring or checking the working environment to maintain healthful working conditions, including the proper design of ventilating systems, setting up safe methods of operation, and providing controls for any condition which may affect the employee.

ANNOUNCER: Is noise really a hazard?

PHYSICIAN: Excessive noise is known as one cause of deafness.

ANNOUNCER: What have the hygienists done to reduce the noise in factories?

HYGIENIST: They have studied noise in industry and suggested methods for noise reduction.

ANNOUNCER: Actually it's hard to say just where the hygienist's job ends and the nurse's or physician's or dentist's begins, isn't it?

DENTIST: They all work hand-in-hand with the common aim of helping the employee.

ANNOUNCER: What about educating the employee about his health? How do you contribute to the overall program?

NURSE: We do that in many ways. Timely subjects can be placed on the bulletin board, lectures are given, the nurse contributes articles on health for the company organ and participates in the orientation program.

ANNOUNCER: Then you all have a finger in education?

PHYSICIAN: Yes, and we all want the healthy employee to stay well, to help him feel his best from his teeth to his toes.

ANNOUNCER: Tell me, how does management feel about an industrial Medical Department?

PHYSICIAN: Well, it is something that I believe many managements have to learn more about. In reality, it is just good business. It pays handsome dividends in terms of good human relations and understanding. Millions of dollars in man-hours can be saved. Absenteeism as a result of sickness is very costly. Efficiency and profits go up when accidents and sickness go down.

HYGIENIST: Nowadays it is not enough to build a better product. We must also help workers enjoy better health.

DENTIST: Health programs help employee relations, too. Management likes to be well thought of.

NURSE: And the workers do think a lot of these health programs.

HYGIENIST: They should. It saves them money. Cuts down time lost and pay lost. Improves morale.

DENTIST: Both labor and management have a big stake in these industrial health programs, even though originally when the benefits to employees were brought to their attention, they resented being regimented even as far as dentistry was concerned. Now they realize this portion of the health program is to their benefit, and they welcome it.

ANNOUNCER: And just how effective are these programs?

NURSE: A recent survey by the National Association of Manufacturers of 2,000 firms shows that a good industrial health program cuts labor turnover 27%, absenteeism 29%, and reduces occupational diseases 63%.

ANNOUNCER: Then constructive health maintenance programs are no longer considered "frills" or luxuries?

PHYSICIAN: Decidedly not. They are now part and parcel of good managerial and labor relations. What's good for the employee is good for business. Likewise it is good for the economy of the nation. America's secret weapon is the skill and happiness of its employed workers. This must be protected—for it is our greatest wealth.

ANNOUNCER: It sounds to me as though the members of your four professions, all of you who are engaged in constructive health maintenance work, are doing a tremendous job of just that—protecting our greatest industrial wealth . . . employee health! Ladies and gentlemen, we've been talking with DR. R. C. PAGE, MISS S. P. WAGNER, DR. L. MORVAY and MR. H. T. WALWORTH. Thank you all—and congratulations on your recent Industrial Health Conference.

Industrial Medical Association

President's Page

A PRELIMINARY statement outlining the basic reasons for the reorganization of the assignments of responsibility for the activities and program of the INDUSTRIAL MEDICAL ASSOCIATION appeared in the July issue of this Journal. It was stated that in view of the recent growth and increased scope of the activities of the Association it had been deemed advisable for more efficient operation to extend these assignments beyond the members of the Executive Committee to whom most responsibility had formerly been delegated. Another reason for reorganization is to provide an opportunity for Directors and District Counselors to become more familiar with the many activities of the Association, to learn the methods of their handling, and to gain experience on the road to assumption of more important duties within the organization.

The first step in reorganization was to remove a portion of the excessive responsibilities which formerly rested in the offices of the President and the President-Elect, by re-assignment of certain of these responsibilities to other members of the Executive Committee; namely the First Vice-President, the Second Vice-President, and the Secretary of the Association. In addition, teams consisting of two Directors each, one serving his second year, the other serving his first year, were appointed to serve as direct liaison between the Chairmen of the various committees and the assigned responsible executive officer.

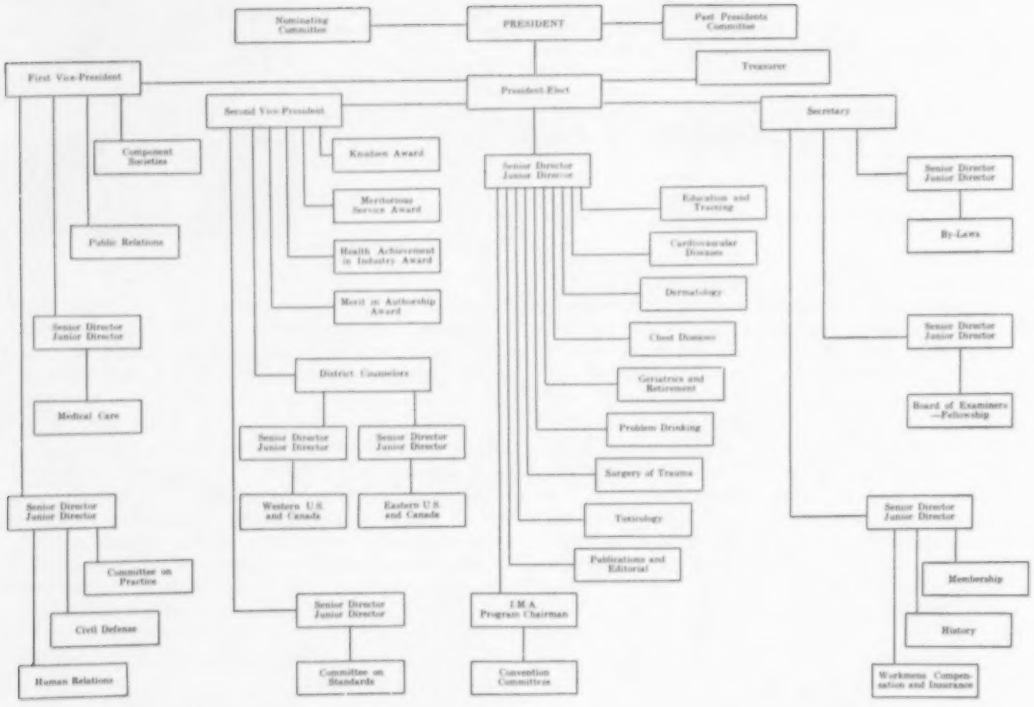
On the bottom rung of this structure, therefore, are the separate Administrative, Policy, and Scientific Committees, each with its appointed Chairman and members. The Chairman of each committee will work in close cooperation with the appropriate team of Directors which has been assigned to be responsible for, and to follow, the activities of his committee. Above each team of Directors is the assigned Executive Committee member who is available to guide and advise the Director-teams as this may be necessary. Reports of the activities, problems, and progress of each committee will be prepared by the Chairman, and channelled through the Director-teams to the assigned Executive member who, in turn, will prepare the necessary reports of activities of all committees for which he is responsible for presentation at the Annual Meeting. Through this procedure, each committee will have at all times ready access to the advice of able and experienced members of the IMA who are in executive positions. Likewise it is believed that through the broadening of the channels of responsibility, reports and problems of committees will receive much greater attention than in the past, and that a considerably more important and efficient calibre of committee work will result. The sole exceptions to the preceding are the following: The Nominating Committee and the Past Presidents' Committee which report directly to the President, the Public Relations Committee which reports directly to the First Vice-President, and the Awards Committees which report directly to the Second Vice-President.

On the following page will be found a chart illustrating the lines of responsibility and communication which have been established under the reorganization.

An additional phase of the reorganization concerns the District Counselors only. In those districts where the Counselor is employed in an industry whose medical services have received the Certificate of Approval of the American Foundation of Occupational Health, now the Occupational Health Institute, he will serve as its representative. In those areas in which the District Counselor is engaged in medical services which have either not applied for, or not received, the Certificate of Approval, a District Representative has been selected from among those members of the Association who are actively engaged in industrial medical services which have been certified. Those District Representatives will actively engage in the promulgation of the activities and program of the OHI, and will publicize through all means at their disposal the importance and value of its program of accreditation of medical services in industry.

Industrial Medical Association

Organization Chart



Report of the Medical Care Committee

WHEN this Committee was appointed in 1951, it was instructed to survey the extent and scope of the medical care program "not only of workers but of their families as well." It was pointed out that programs for complete medical care were rapidly appearing as a result of union collective bargaining practices, and that information on them would be of value to IMA in future policy making.

Obviously the Committee has had to depend upon studies and reports made by organizations properly staffed for such work. Our report therefore consists largely of lists of statements and publications which the Committee believes are significant and informative.

A similar Committee exists in the Council on Medical Service and the Council on Industrial Health of the AMA. Some of the material gathered by that Committee is included in this report. Other material is from the work of the Occupational Health Division of the U.S. Public Health Service.

This report, except for some background material contained in the first two publications of the Occupational Health Division of the Public Health Service, concerns itself largely with health programs under management and labor sponsorship, such as those discussed in the third and current publication of the Public Health Service (which will be described later). Other surveys and statements bearing on these developments are listed and briefly described.

At the present time funds secured through collective bargaining on the part of unions are being spent on one of the following four types of programs:

1. *Benefits purchased from commercial insurance companies and classed as cash indemnity payments.* These programs attempt to provide reimbursement for hospital and surgical and sometimes medical services, mostly within the hospital confines. These plans are limited in scope and do not promote any preventive aspect of health maintenance or provide early detection of disease.

2. *Blue Cross and Blue Shield plans*, were instituted first of all to cover hospital and professional services respectively. They have been changed somewhat since their beginning. Blue Cross plans were conceived as service types of plans which would not entail any additional expense to the members beyond premium payments. However, as costs have risen within the hospital, many of these plans have had to limit their services, and there has been a trend toward the indemnity type of plan. Blue Shield Plans may be either "service" or "indemnity," most of them being "service." Some Blue Shield Plans cover office and home medical care. Many cover office surgery. Even in combination, they do not provide

the entire cost of hospitalized care, and of course they do not provide home or office care generally. Blue Cross and Blue Shield are now organizing on a national scale and hope to duplicate almost any package plan which the commercial insurance companies are offering.

3. *Diagnostic centers providing medical service for ambulatory cases*, with such diagnosis and treatment as are possible within a well-equipped medical center, staffed by full-time and part-time physicians. Examples of this type are the Union Health Centers, serving the International Ladies Garment Workers Union, the Sidney Hillman Health Centers, serving the Amalgamated Clothing Workers, and the New York Hotel Association Health Center.

4. *Complete comprehensive medical services* provided by group practice, similar to the clothing industry centers, but with the addition of home and hospital care. This is presumably the most expensive, but the ideal of which some unions dream. The Labor Health Institute in St. Louis is an outstanding example. It is owned and operated by the AFL Teamsters' Union and serves the health of 14,000 union members and their families, providing medical and surgical care, hospital contracts, dental care, and drugs at reduced prices. The average family's "out-of-pocket" expenses for drugs and medical and dental "extras" averaged only $37 for 1951-52.

There are three publications issued by the Occupational Health Division of the Public Health Service which are basic in any understanding of present developments in medical care of workers. The first two dealt largely with facilities available to employees within their working environment, frequently referred to as in-plant services. *Industrial Health and Medical Programs*, published in 1950, covered the broad field of Industrial Medicine and was followed two years later by the second volume, *Small Plant Health and Medical Programs*, in which problems peculiar to the small plant were presented. *Management and Union Health and Medical Programs*, just issued, presents another area of employee health, with emphasis on medical care outside the plant, for not only workers but their families as well, under the sponsorship of employee organizations or unions, or management, or both.

The following list contains those publications which the Committee recommends for reading by IMA members if they wish to be informed on this growing trend in medical service to workers and their families. For reference purposes they will be found useful.

1. *Industrial Health and Medical Programs*, 1950, compiled by Margaret C. Klem, Margaret F. McKiever, and Walter J. Lear, M.D., of the Division of Industrial Hygiene of the Public Health Service. Although much has been written about industrial health and medical programs, it is widely scattered in various journals, bulletins, and books. This reference book has been prepared to meet the need for a convenient source of published material on the subject and is in the form of direct quotations and tables from 260 books and publications. This is Public Health Publication No. 15 and may be obtained from the Superintendent of Documents, United States Government Printing Office, Washington 25, D.C., for $1.00.

2. *Small Plant Health and Medical Programs*, May 1952. compiled by Margaret C. Klem and Margaret F. McKiever, of the Division of Occupational Health of the Public Health Service. This was prepared to meet requests for current information on the subject and is concerned chiefly with services provided in industry by physicians and nurses. It also includes descriptions of several small plant programs as examples. Data are provided on costs and accomplishments of such programs. This report was prepared on the basis of published material, correspondence, and personal interviews. This is Public Health Service Publication No. 215 and may be obtained for 50 cents from the Superintendent of Documents, United States Government Printing Office, Washington 25, D.C.

3. *Management and Union Health and Medical Programs*, 1953, compiled by Margaret C. Klem and Margaret F. McKiever, of the Division of Occupational Health of the Public Health Service. This volume is an effort to trace the origin and growth of health and medical care programs under management or employee sponsorship and to describe selected programs as examples. In recent years the negotiations for many types of health and welfare benefits in collective bargaining contracts have emphasized the interest of management and labor in the field of employee health. Some companies and unions established programs more than a hundred years before the surge of interest in voluntary health and welfare plans that came during World War II. The report is in five sections, as follows: I, Development of Management and Union Programs; II, Extent of Union Programs and Types of Benefits; III, Program Characteristics; IV, Administration and Financing of Programs under Collective Bargaining; V, Selected Programs. This is Public Health Service Publication No. 329 and may be obtained for $1.00 from the Superintendent of Documents, United States Government Printing Office, Washington 25, D.C.

4. *Union Health Centers*, September, 1953, a survey by the Committee on Medical Care for Industrial Workers of the Council on Medical Service and the Council on Industrial Health of the AMA. This is a description of 12 union health centers with details of organization and operation. The data are classified under (1) history, (2) membership, (3) objectives, (4) facilities, (5) financing, (6) budget and operating costs, (7) administration, (8) business and professional personnel, (9) benefits, and (10) preventive aspects of service. No evaluation is given. Copies are available from the American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

5. *The Impact of Labor Health Plans on Occupational Health: The Opportunity*—paper presented before the Industrial Hygiene and Medical Care Sections of the American Public Health Association at the Annual Meeting, November 11, 1953.

6. *The Cooperative Health Federation of America and its Member Plans*, edited by Jerry Voorhis, published by the Cooperative Health Federation of America, 343 South Dearborn Street, Chicago 4, Illinois. This is a list of member plans of the C.H.F. with a brief description of each.

We believe that this Report should be published and that this Committee should be continued, reporting from time to time on significant developments in these areas.

—William A. Sawyer, M.D., Chairman
John W. Brown, Jr., M.D.
Leo Price, M.D.
Frederick Slobe, M.D.
D. S. Thurber, M.D.

Occuptional Health Institute

THE OCCUPATIONAL HEALTH INSTITUTE, sponsored jointly by management and medicine, has established headquarters at 6 East 39th Street, New York 16. The Institute will assist both large and small firms in their efforts to improve employee health through constructive health maintenance medical programs. "Management is becoming increasingly aware that good health is good business, but there often is confusion as to how best to provide the right quantity and quality of medical service for employees. Thus the Institute will fill a real need which has become apparent to both industrial and medical leaders." Recognized by the medical profession as the official accrediting agency for industrial health programs, the Institute will be available to industry for studies and surveys of programs throughout the United States and Canada, consultation on problems, and recommendations for bringing programs up to standards which have been established by the INDUSTRIAL MEDICAL ASSOCIATION for plants with from 50 to 25,000 employees. Thirty-two Regional Directors, all leaders in industrial medicine, will help carry out this phase of the program. The Institute will take over and expand the activities formerly carried out by the American Foundation of Occupational Health, and will sponsor scholarships and fellowships in industrial medicine, hygiene, and nursing. Emphasizing management's recent increased interest in employee health as a matter of "enlightened self-interest," DR. ROBERT COLLIER PAGE, Chairman of the Institute's Board of Trustees, cited a report by the American Institute of Management in January of this year, which observed that a well-rounded, soundly administered industrial health program more than pays for itself in terms of reduced labor turnover, less absenteeism, reduced compensation premiums, fewer cases of occupational diseases, reduced spoilage and improved morale and productivity. "The OCCUPATIONAL HEALTH INSTITUTE'S requirements for accreditation make clear to the employer the kind and amount of medical service he should be providing to achieve these results," DR. PAGE said. "The Institute will show him how best to do it in his particular situation. We will apply to his special problems the pooled experience of leading specialists in industrial medicine. Meanwhile, through scholarships and fellowships we help insure a supply of good, well-trained professional people to serve in industry."

To be certified by the Institute, companies must: (1) have a stated medical policy; (2) perform preplacement medical examinations; (3) perform periodic physical examinations on all employees exposed to industrial hazards; (4) have available facilities for voluntary periodic physical examinations for all employees whenever considered practical; (5) maintain a competent consulting staff; (6) give attention to sanitation, safety precautions, and industrial hygiene; (7) have the chief medical officer or adviser report to some responsible member of management "who is conscious of and familiar with managerial interpretation of medical policy"; (8) maintain a well-equipped dispensary for emergency care as well as for preplacement and periodic examinations; and (9) have medical and nursing personnel who are graduates of accepted schools of learning and are in good standing and properly licensed to practice.

DR. PAGE, General Medical Director, Standard Oil Company (New Jersey), is President of the INDUSTRIAL MEDICAL ASSOCIATION, Clinical Professor of Industrial Medicine at the New York University Post-graduate Medical School, and Co-chairman of the Medical Advisory Committee to Industry of the National Fund for Medical Education. Other trustees are DAVID M. BLACK, Assistant to the President, Lambert Pharmaceuticals, Jersey City; DR. E. H. CARLETON, General Medical Director, Inland Steel Company, East Chicago, Indiana; DR. KIEFFER DAVIS, Medical Director, Phillips Petroleum Company, Bartlesville, Oklahoma; MISS CATHERINE R. DEMPSEY, Supervising Nurse, Simplex Wire and Cable Company, Cambridge, Massachusetts; PROFESSOR PHILIP DRINKER, Harvard School of Public Health, Boston; DR. GEORGE H. GEHRMANN, Medical Director, E. I. du Pont de Nemours and Company, Wilmington, Delaware; STEPHEN G. HALOS, President, Industrial Medicine Publishing Company, Chicago; DR. GORDON H. SCOTT, Dean, Wayne University College of Medicine, Detroit; WILLIAM H. SEYMOUR, Vice-President, Liberty Mutual Insurance Company, Boston; DR. WILLIAM P. SHEPARD, Third Vice-President, Metropolitan Life Insurance Company, New York; and DR. GEORGE F. WILKINS, Medical Director, New England Telephone and Telegraph Company, Boston.

The officers of the OCCUPATIONAL HEALTH INSTITUTE are: DR. ROBERT COLLIER PAGE, Chairman; STEPHEN G. HALOS, Vice-Chairman; CATHERINE R. DEMPSEY, Secretary; DAVID W. BLACK, Treasurer.

Letters

The Rheumatic Lung

THIS ODD *term, and not too odd since anatomically nearby is the "rheumatic heart," has found its way into the lay press in the description of a newly detected disease among the coal miners of the British Isles and which came to the attention of the British Medical Research Council and was reported in the* BRITISH MEDICAL JOURNAL. *Better named "rheumatoid lung lesion," this syndrome reflects the occurrence of arthritis along with a dusty lung disease attributed to coal dust. Wanting more information and better understanding of the information already in hand, all was referred to one associate skilled in the pneumoconioses. His informal response now follows:*

TO THE EDITOR: My comments will be limited to the chronic lesions of the so-called "rheumatoid lung" and do not apply to the pulmonary manifestations of acute rheumatic fever which are well-known clinical entities. As for my personal observations of the condition of "rheumatoid lung" I have definitely seen it not only in coal miners but also in gold and copper miners. However, it is a decidedly *rare* variant of industrial chest manifestations; so rare and sporadic indeed that it cannot be regarded as a mathematically independent biological phenomenon, i.e., its appearance is seemingly dependent on the concatenation of a multiplicity of pathological accidents. However, I am willing to accept that in countries other than South Africa the lesion may be seen more often among miners. Caplan (1953) found 51 cases of rheumatoid arthritis among 14,000 coal miners, with "rheumatoid" lung lesions in 90% of these 51. Over the past 10 years no more than about 50 examples have been seen in South Africa among about

half a million miners (black and white) surveyed. The higher incidence of the lesion in Wales is necessarily related to the greater frequency of rheumatoid arthritis there. The miners in South Africa have a belief that they develop arthritis from mining but no one has yet been so unwise as to inspire them with the thought that the joint trouble may be due to dust: they believe it is due to working in water, repetitive trauma, the stresses and strains of underground work. A cursory statistical survey made in 1949 tended to disprove an enhanced incidence of rheumatoid arthritis. But there were lesser degrees of the condition not included in this survey.

Collis and Yule (1953), on the contrary, reported chronic rheumatic disease to be four times more common among miners than among the general population in England. What has been overlooked in the case of South African statistication is that the miners there are a highly selected group, so that by rights they ought not to have developed joint disease at all and certainly not at such an early age as is commonly seen. The coal miners of Wales include more men in the higher age groups. My own observation suggests, moreover, that the joint lesions are more commonly found among individuals with concomitant bronchitis and emphysema and less frequently among the clear-cut silicotics or the men who escape pulmonary disability entirely.

It is said by some that pulmonary lesions of the type found among miners never occur among nonmining rheumatoid arthritics. Others dispute this point. Certainly, those who have previously described rheumatic lung lesions have not invariably investigated all or any etiological industrial factors. It may prove to be the case that all cases of rheumatic lung previously recorded occurred among industrial employees. This would be an interesting point to establish.

Miall, Caplan, Cochrane, Kilpatrick, and Oldham (1953) make the point that there is an increased incidence of these rheumatic lung lesions in association with progressive massive fibrosis in coal miners and that the lung lesion may precede the joint manifestations by as many as 11 years, though rarely the arthritis comes first. Experience in South Africa has been just the opposite. Arthralgia, swollen joints, and arthritis deformans, etc., usually precede by many years any pulmonary radiographic features which are sufficiently dissimilar to pneumoconiotic patches to warrant the additional tag of "rheumatoid variant." In fact, I don't see by what process of logic one can call a pulmonary lesion "rheumatic" until there is rheumatism somewhere in the body. This makes one suspect that the facts have been adapted just a little to theory.

As for the high typicality of the disease, I am yet to meet a competent radiologist who would venture to classify one of these x-rays as rheumatic in type without knowing that the patient has rheumatic disease. One usually inclines to the conclusion that rheumatism and the pulmonary lesions are related when there is nothing else whereby to explain their aberrant characteristics. This perhaps is not good medicine. For every x-ray which one is inclined to identify as a rheumatoid variant (because of co-existing rheumatism) a matching plate can be found where no rheumatic factor is discernible. Certainly lesions identical to those illustrated in various papers as rheumatoid lungs have been found by me among miners with absolutely normal joints. I am equally willing to concede that others can find lesions such as I have called rheumatoid among their non-rheumatic patients. In other words, one may conclude that there is nothing pathognomonic about the radiological appearances identified as the rheumatoid lung. It would interest me immensely to be proved wrong over this.

As for autopsy confirmation, we are all in the same boat. The cases identified by me as being possible rheumatic variants have proved elusive: not one has died under circumstances where autopsy became possible. Indeed, I gained the impression that these miners tended to have an enchanced relative life span and I entertained the suspicion that the pseudo-rheumatic components of their disease were manifestations of defense mechanisms: uncomfortable for the patient but good for his survival. Aschoff bodies have certainly been observed in pulmonary tissues, especially in men dying shortly after an attack of acute rheumatic fever or with one of the more fulminating types of arthritides. What is remarkable, rather, is how rarely they have been observed, having regard to the frequency of rheumatic disease. We performed about 1200 post-mortem lung examinations per annum in South Africa. If any group could speak with authority concerning the rarity of rheumatic lung disease it should be the South Africans, though I must admit that microscopic search was not made in all these cases (as it should have been), there being no macroscopic indications of abnormalities warranting such search (which too is a fallacious way of reasoning). Caplan, however, bases his 1952 theorizing on three autopsy cases and in all of these tuberculosis was present. This is a poor showing for the pathologists.

Tuberculous rheumatism has been a well-known entity during the past 50 years. We have all seen individual cases and all know of the tragic flare-up of drug resistant tuberculosis in rheumatoid arthritic patients on cortisone therapy. Gough strongly favors tuberculosis as a factor in progressive massive fibrosis of coal miners and it is among these that the rheumatic variants are commonest. This suggests strongly that before new disease entities be allowed to gain recognition, more exact diagnoses should be established in these atypical cases, ruling out definitely the potential common denominator, the human tubercle bacillus in *all* its different biological phases.

You must be well aware of the fact that the concomitant presence of silicotic lesions together with any chronic pulmonary disease or several systemic affections modifies significantly the appearance of the pneumoconiotic reaction. We grouped all such aberrant forms under the heading of "infectious changes" in South Africa. The chief infecting agent naturally is the tubercle bacillus, leading to tuberculosilicosis. Syphilis plays the same role, and it strikes me forcibly that this disease has not invariably been excluded in the recorded cases of so-called rheumatic lung. Unusual x-ray findings may occur also in silicotics with monilial infection, after pneumonia or pneumonitis, etc. Until such conditions have been excluded, I would be loath to speak of rheumatic lung even in the presence of demonstrable pneumoconiosis and/or chronic rheumatoid arthritis.

Other conditions which should also be considered in the differential diagnosis are scleroderma, systemic lupus erythematosis, periarteritis nodosa, Loeffler's syndrome, bilharziosis, histoplasmosis, and brucellosis. These can all have simultaneous lung and joint signs but may have little else to bring diagnosis into sharp focus, and may occur among the industrial population as well as among the rest of humanity. Should we not require, too, before one ac-

cepts the concept as a specific industrial disease, that in all such cases all metabolic disorders, nutritional deficiencies, and chronic infections be ruled out.

Hypertrophic pulmonary osteo-arthropathy, so well known a couple of decades back, seems to have been too scantily considered. At least a quarter of South African miners with advanced pulmonary disability have clubbed fingers, stiff painful joints, sore backs, and chest pain. These symptoms are worse the more associated bronchitis or bronchiectasis there may be. Apparently either there is some form of chronic toxemia in these cases, or soft tissue metabolism has become altered in the presence of chronically impaired cardiorespiratory functional efficiency mediated to connective tissue, either directly as altered tissue respiration or manifesting itself indirectly through endocrinological disturbances, perhaps at the suprarenal cortical level, perhaps in the form of a dyspituitarism. I made observations more than 10 years ago, when engaged on my study of the pyelo-adreno-neural syndrome, on the frequency of arthroses and transient pulmonary symptoms in patients with impaired or modified suprarenal cortical functioning. I need little convincing that malfunctioning of such endocrine mechanisms can lead to serious chronic disease based on disorder of the collagen metabolism. Before an independent industrial rheumatoid lung condition be granted recognition, we should know more about these obscure endocrine mechanisms in industrial employees. Such study may lead to a concept of adrenal damage through hazardous industrial environmental exposures. After all, both silicosis and rheumatic disease are collagen disorders, in both of which granulomatous phases are identifiable. Moreover, in both there can be extensive pulmonary vascular damage. What is more natural than that they may have a common etiology.

When berylliosis first appeared on the horizon there were wise men who refused to give it credence, while some took long chances and made a killing. Today one hears of the disease being glibly diagnosed by the medical student even when many histopathologists still remain in doubt as to the differentiation between berylliosis and sarcoidosis. Compensation will no doubt be awarded some of the three-mile distant neighborhood wives. Certainly, existing criteria for calling a disease occupational have become a little shaky in this atomic age. Let us be modern, too, and speculate along with the Welshmen whether these bizarre lesions occurring in miners are not perhaps to be interpreted as industrial chest disease. Quite apart from adrenal-pituitary mechanisms, I can visualize well how little accumulations of carbon in lymph nodes throughout the lungs can attract to them large quantities of nocuous substances much like gas masks can trap poisonous fumes. A respirator can subsequently be rendered harmless or disposed of: not so, unfortunately, for the lung. Whatever type of cyto-toxic substance may have been trapped in the carboniferous pulmonary deposits may remain there until some intercurrent systemic disease, involving modified reticuloendothelial activity, leads to their spillage into adjacent pulmonary tissues with sequential extension of focal pulmonary fibrosis and further vascular damage.

—G. W. H. Schepers, M.D., D.Sc.,
Director, The Saranac Laboratory.
Previously Chairman
Pulmonary Disability Committee,
Silicosis Medical Bureau,
Johannesburg, South Africa.

The AMA Convention

To the Editor: In one of his rare affable moments some months ago your reporter consented to cover the AMA Convention in June and to write a brief account of those proceedings and exhibits which might be of interest to the readers of *Industrial Medicine and Surgery*. At the time this rash promise was made, it seemed a simple matter to describe a birdseye view of a well organized affair such as an AMA meeting. But by the morning of Monday, June 21, the opening day, your reporter had learned enough in advance to realize that there would be no less than 12,000 doctors in attendance, with more than 20,000 registrants, that the program would consist of at least 400 scientific papers, and that there would be at least 500 scientific exhibits, and at least another 500 technical exhibitors. He tried to recapture the gay, light-hearted spirit in which he had cheerfully promised to portray the scene for the Journal, but the feeling of frustration and inadequacy that overcame him would not be banished. He would be jostled by the crowds, confused by the number of meeting halls, immobilized by inner conflict as to which of the many meetings he might attend, physically exhausted if he attempted to inspect all of the exhibits, and overwhelmed by a feeling of loneliness in so large a crowd in which he would identify so few and be recognized by none. He began to envy the stay-at-homes for whom he was to write the account. They had chosen the wise course. Never afraid to emulate the example of wisdom, he made his courageous decision. He, too, would stay home, cling bravely to his arm chair on this, the hottest day of the year, and study the convention from the pages of the evening paper. . . .

To smoke or not to smoke—that was the question that absorbed the convention, according to the front page of the *Evening Trumpet & Bugle*. It seems a committee had been formed to explore the relationship between cigarette smoking and cancer of the lung and that it had published a preliminary report—which was condensed in the newspaper article. Your reporter read the first paragraph carefully, but he pleads guilty to having skipped through the rest in haste—in fact, in frenzied panic—haunted by the shadows of the millions of cigarettes he had smoked, convinced he could not possibly live to finish the article at his ordinary reading pace. But . . . . "We all die sooner or later," said Dr. Charles Cameron, Medical and Scientific Director of the American Cancer Society, "and it is useless to be worried about the inevitable." Dr. Cameron developed his philosophy a little further, the general effect being that if one lived a little happier or a little better, even at the expense of living a trifle shorter, it might prove to be a satisfactory choice. Such realistic philosophy from an official of a non-official agency returned me to my chair to glory in the fact that, in a day when tension is the national disease and anxiety an almost universal complication, here is one official of a fund-raising agency who is allaying anxiety rather than exploiting it. May his tribe increase. My courage was restored to the point where I resolved the next day to attend the meeting on Preventive and Industrial Medicine and Public Health. . . . It would not be fair to withhold the context of this session. After all, these were scientific papers and the reader is entitled to all the scientific knowledge that I, who attended this scientific session, can give him. Therefore, let me recapitulate the entire afternoon by advising that physical

examinations are good, that lead is bad, and that beryllium causes berylliosis. . . .

HAVING survived, to my surprise, the rigors of attending a whole afternoon of scientific sessions, I drove to the convention again on Wednesday so I could explore the colored television exhibit. I was prompted to do this by a friend who said, "I went to see a demonstration picture for 20 minutes and stayed an hour and a half!" In your reporter's opinion, if anything new has been added to medical meetings, this method of education—the presentation of clinics and demonstrations through colored television—is "IT." Two audiences in two halls faced two large screens, clearly saw the operations, and heard the discussions distinctly without strain or distortion while comfortably seated in theatre chairs. This is a great contribution by mechanical science to education. I hope it will be followed, however, by improved methods of group discussions and presentations of material which will outmode the "lecturer and audience" type of meeting. Not all panel presentations I have attended have been successful, nor does a successful panel presentation yet represent the ultimate form in group conferences. In my role as reporter, I report the fact that "lecturer to audience" presentation is still the general, if not the invariable rule of the AMA meetings. In my role as an Associate Editor, I offer the editorial opinion that the Industrial Medical Association and probably most of its components (most certainly the Western Industrial Medical Association) are foresighted and wise in continuing to increase the number of their meetings which encourage audience participation. . . .

MUCH of Thursday afternoon was spent in the exhibit hall. San Francisco was selected as the meeting city because its auditorium is one of the few buildings considered large enough for the space required by the scientific and technical exhibitors. This year, at least, it did not prove large enough, and the space was supplemented by a large tent in front of the entrance. According to the newspapers, the AMA had to pay between $15,000 and $30,000 extra for the erection of this tent, and, of course, this statement was played up to reinforce the arguments for the construction of an even larger civic auditorium. Other conditions received unfavorable publicity. One was the allegation that many doctors who had made hotel reservations were not accommodated and there was a scramble for quarters. The explanation given for this was the fact that there were many preconvention meetings and that the doctors who had attended these had not vacated the rooms as they had originally promised. Another was a serious bottleneck on the last day of the meeting when all the airlines and train accommodations apparently were booked solidly and there was a waiting period of up to 48 hours or longer for accommodations out of town. These inconveniences, incidentally, appeared usually to affect those who did not make a cash deposit for hotel reservations in advance or who had not reserved their travel space sufficiently early. . . .

SINCE every inch of the large auditorium and tent was occupied by booth space, your reporter received a bewildering impression. When, however, he narrowed his interest to visiting certain types of booths—namely, those displaying inhalators—he began to realize the full value of the exhibits from the commercial exhibitor's point of view. Seated for a while at Ed Luongo's booth, he observed the way the passersby carried out a process of selection by stopping only where the exhibits appealed to them. He was impressed by the number of guests—which included army personnel—particularly nurses, registered nurses, doctors' wives, technicians, and lay employees of public health organizations and nonofficial agencies; impressed also by the apparent seriousness, thoughtfulness, and dignity of the registrants. He enjoyed a vicarious thrill at the pride of a guest who eagerly explained that her son was interning at a hospital in the East and could not attend the convention, so she was gathering the material she thought would interest him. Hers was the true pride which is not followed by a fall. . . .

ON FRIDAY your reporter retired again to make an arm chair examination of his worm's-eye view of the tremendous meeting. The social agencies which had been so well represented at most of the conventions in his past experience seemed to be conspicuous by their absence; at least in the Preventive and Industrial Medicine and Public Health section. Whether this was because it was an AMA meeting or because budgets, activities, and travel are more limited, currently, he does not know. He did feel that the papers were more specifically targeted at medical entities than is the case when those interested in forwarding broad programs of mass health are more numerous or more articulate. He felt that there was less sense of urgency in this meeting than in those when the cry has been to reform, educate, or "increase the awareness" of large groups of people. . . .

—CHRISTOPHER LEGGO, M.D.

Books

Tired?

SYMPOSIUM ON FATIGUE: Edited by W. F. FLOYD and A. T. WELFORD. H. K. Lewis & Co. Ltd., London, 1953, pp. 196, 24s. net.

Never let it be said that in England "fatigue" ever has been accepted as a light and airy matter. With precedence reaching into the years of the first World War, "fatigue" has been clothed in the habiliments of the pontifical. This present publication lives up to precedent. Ever since Prosser White coined the term "dermatergoses," confusion in this country has attended every incorporation of "ergo" in scientific terminology. This publication by "The Ergonomics Research Society" may stop some readers in their tracks in the wonderment as to just what "ergonomics" are. This reviewer's interpretation is that "ergonomics" reflects the physiologic economics of work. Little clarification is provided by the definition of fatigue first appearing in the book which is:

"Fatigue is a term used to cover all those determinable changes in the expression of an activity which can be traced to the continuing exercise of that activity under its normal conditions, and which can be shown to lead, either immediately or after delay, to deterioration in the expression of that activity, or, more simply, to results within the activity that are not wanted."

Another definition implied, rather than precisely stated, further along in the publication is:

"Whenever the body is submitted to stress we can anticipate that there will be a new alignment of altered forces and a new position of equilibrium will be established. The signs and symptoms of fatigue may show themselves either as a failure

to maintain an equilibrium position or by an obvious exaggeration of one or more of the forces which are employed in giving the equilibrium position."

Far more graspable is one cause of fatigue as set forth in this language:

"Whatever definition of fatigue be agreed on, insufficiency of oxygen is likely to be accepted as one of the possible causes of its onset. The oxygen may be essential either for removal of some substance causing the actual fatigue or for continuance of some self-regenerating cycle."

As to definitions, the British are not without their own uncertainties as these words demonstrate:

"What is commonly called 'fatigue' is one of the most general experiences. On the one hand, it has been said that the word 'fatigue' is so familiar and intelligible that it is unnecessary to define it, and on the other hand, that it can mean so many things that a definition is essential. Indeed, because the word can mean, and has been used to mean, so many things, one of the author's colleagues suggested more than 30 years ago that it should not be used at all in scientific discussions."

All of the foregoing is decidedly unfair to this publication. Without doubt, it encompasses the best that is known at the present time about that little revealed physiologic affront "fatigue." Twenty chapters of earnest exploration reach to such topics as physiologic factors, thermal factors, fatigue of the tropics, visual fatigue, measurement of fatigue, the alertness indicator, the environment and fatigue, frustration and fatigue. The presentations are superb, but, when all is said and done, the bugaboo is still there.

No one knows precisely what fatigue is, or its exact causation, or how to prevent it. It becomes possible that fatigue is not "one state," but a score of states and some several thoroughly intertwined. The British group has achieved mightily, but still, brave is that instructor addressing a body of students who in a one-hour period or a dozen would insist on finality as having been reached as to one of physiology's outstanding complexities, the burdensome matter of fatigue.

Ballistocardiography

BALLISTOCARDIOGRAPHY—WILLIAM DOCK, B.S., M.D., F.A.C.P., HARRY MANDELBAUM, M.D., F.A.C.P., ROBERT A. MANDELBAUM, B.A., M.D. C. V. Mosby Company, St. Louis, 1953; Price $9.50.

This is a worthwhile book of the application of the direct (portable) ballistocardiograph to clinical medicine. It is complete, concise, easy to read and informative. The illustrations are good and portray a variety of clinical cases. Special emphasis is placed on the relation of the ballistic impulses experienced by the body to the waves of pressure and blood flow set in motion in the heart and great vessels by systolic contraction and diastolic relaxation of the auricles and ventricles. Dock and his coworkers give an excellent exposition of the phases of cardiac activity and heart physiology which have scarcely been noted by many practicing physicians. They provide new explanations for the pattern of the ballistic waves and show that the H-I-J no longer can be thought of as due solely to ventricular recoil and the impacts of pulse waves on the aortic arch.

The portable ballistocardiograph is very sensitive to slight changes in the velocity of systolic ejection and to the speed with which maximal acceleration is obtained. It provides tracings of body motion which may be correlated with certain clinical entities and with prognosis. It is emphasized that the ballistocardiograph does not replace other methods of diagnosis; and records must be interpreted in the light of all the clinical facts. The authors caution against the interpretation of ballistic tracings in terms of anatomic diagnosis by a laboratory or even a physician who is not familiar with the patient. In interpreting a tracing it is necessary to know the age, sex, height and weight of the subject, as well as the blood pressure and hemoglobin level. For more precise interpretation the history, important physical findings, including x-ray of heart and electrocardiogram should also be considered.

There is a detailed description of taking and standardizing the ballistocardiogram. This attention to details should do much to avoid the variability in tracings which confuses the neophyte and causes such bizarre ballistocardiograms. It is also important that recording of the electrocardiogram, arterial pulse, or heart sounds be done simultaneously with the ballistocardiogram.

There is no specific ballistocardiographic pattern for any one clinical entity. The authors use the terminology introduced by Brown, Hoffman and deLalla (1950) in classifying ballistocardiograms taken during normal respiration. This interpretation is based on calculation of stroke volume of the largest and smallest complexes during respiratory cycles. Compared with the normal tracing, Grade 1 is considered as minimal evidence of abnormality in the ballistocardiogram and perhaps not due to heart disease. Grade 2 is considered as evidence of moderate circulatory abnormality; Grades 3 and 4 are taken as evidence of marked abnormality. It is noted that normal tracings may be obtained in heart failure with high intake volume, such as in anemia and Graves disease, and aortic insufficiency, also even in some cases of acute myocardial infarction. When no cardiac complaints are present the tracing is normal in most patients with congenital and acquired cardiac lesions of the valvular type.

While the ballistocardiogram can provide some interesting findings in the differential diagnosis of congenital heart lesions, such as pulmonic stenosis and interventricular septal defects or patent ductus arteriosis, its most important application is in the diagnosis of coronary disease. The authors review the ballistic waves in acute myocarditis, heart failure, arterial hypertension and conduction defects. They note the finding of normal systolic complexes, at rest, or even on exercise, in some cases of myocarditis. Bundle branch block may persist in the electrocardiogram for the patient's life, but the ballistic pattern is usually normal. In complete heart block the combination of lateral and longitudinal ballistic tracings is often sufficient proof of independent action of the auricles and ventricles. In hypertension there is no close correlation between the degree of left axis deviation or the so-called "strain pattern" changes in the electrocardiograms and the degree of abnormality of the basal ballistocardiograms. Ballistocardiographic abnormality is often present in hypertension. By observing the modification of the ballistic pattern by exercise, by abdominal binders, and digitalization, the physician may be aided in estimating the part played by poor physical conditions, by scars of myocardial infarction, or by heart failure in causing the alteration in the ballistic pattern.

The authors analyze the facts in the controversy that the ballistocardiogram has been said to be valueless in detecting coronary artery disease because of the very great frequency of abnormal tracings in older subjects with no other evidence of coronary disease. They refer to Starr's follow-up on normal people with abnormal ballistic tracings which proves that a high incidence of heart disease becomes apparent when such subjects are followed for a five to ten year period. They cite their own experience that coronary attacks or sudden deaths occur far more often in "normals" with Grade 3 or 4 traces than in those with no abnormalities. Age or involution can lower wave amplitude but they feel that no one has shown anything but heart failure or scars due to coronary artery disease can cause the Grade 3 or 4 changes; or the fused H-J and noticed J pattern seen in many Grade 2 tracings.

The ballistocardiograph has a place in industrial medicine. Its use in screening techniques, its inclusion in periodic examination and the application of the exercise ballistocardiogram in the detection of questionable heart disease in problem cases fit into the scope of industrial medical practice. The portable ballistocardiograph described by Dock and his coworkers may produce variability in tracings to the neophyte, but with careful technique and experience the instrument will prove to be a valuable clinical tool.

The industrial physician in his contact with so many "normal" persons can in his follow-up of the aging worker give us valuable information on the significance of abnormal ballistocardiogram tracings in the otherwise "normal" person.

—S. CHARLES FRANCO, M.D.

Respirallergy

RESPIRATORY DISEASES AND ALLERGY: JOSEF S. SMUL. Medical Library Company, New York, 1953, pp. 80, $2.75.

Now and then an author assembles much that is old but in the process produces a flavor of newness. Such is this book. The author insists, and all agree, that we might as well give up the idea that the "common cold" will prove to have any "common" causation. He splits off some 20 different respiratory affections and allocates them to the category of allergy. He is mindful that other etiologic factors assert their trouble making such as infectious agents, and he describes many. For the allergy group he makes use of the term "respirallergy" and possibly created that term. The major portion of this small book is directed to the classification, nomenclature, pathology, symptoms and treatment of the respirallergic diseases.

This book is not without its faults. When the author insists that all of the allergy he describes is "inborn" he invites attack. Much of allergy is acquired although the possibility is that always there is a genetic factor. Apparently the author fails to recognize a multitude of respiratory disturbances fully produced by direct irritants such as the industrial gases. The good of this book is mildly shadowed by the bombastic, although the publisher may be the source of part of the exaggerative. All that is forgiven since a real contribution has been made through the segregation of a long list of respiratory affections, many of which resemble "common colds" and relabeling them "allergy" thus paving the way for different treatment. This book is not as world changing as its publisher asserts, but it does have its points.

Back to Work

DISABILITY EVALUATION: EARL D. MCBRIDE. J. P. Lippincott Company, Philadelphia, 5th Edition, 1953, pp. 715, $15.00.

Slowly rehabilitation is coming into its own. Even more slowly coming is the realization that compensation for the disabled industrial worker is a puny and unsatisfying thing and that getting the worker back on a job through rehabilitation is far more important than a little money to serve survival. Prior to rehabilitation is the essentiality of the disability appraisal. That is the door through which this book makes its entry. Although this is the fifth edition, the first edition in its preface contained peculiarly pertinent language:

"The true role of therapy is restoration of function. If function is only partly restored, how can the loss be expressed intelligently? In times past this problem concerned only the person who was unfortunate enough to receive the injury. He solved the problem by his own ability to adapt his depreciated physique to the circumstances of environment. Of late years organized society has assumed the responsibility by providing monetary compensation and social rehabilitation.

"Logically, the physician is called upon to evaluate the extent of incapacity; but even though the physician has been schooled in anatomy and physiology and has the therapeutic means of preventing deformity and restoring function, he finds himself deficient in being able to determine, appraise and evaluate the difference between the person as he was before his injury and the variation from normal after recovery. Society, through the industrial court, demands to know. It asks for the extent of disability in terms of percentage of loss of use of the body. Guessing casts reflection on integrity and qualifications. Wide difference of medical opinions breeds suspicion of prejudice. If an opinion is to be expressed it must be based upon the same sound scientific reasoning as is used in arriving at any medical diagnosis. Not only must the anatomic alterations be determined, but the progress of improvement must be prognosticated, the final healing state recognized and the extent of personal incapacity estimated with arithmetical preciseness.

"In attempting to formulate a uniform system of arriving at percentage conclusions, the author recognizes that the difficulty lies very greatly in the difference of the attitudes of physicians toward making evaluations of disability in terms of percentage. He has attempted to stress the effect of physiological and mechanical alterations of the motor parts of the body and to draw conclusions as to the loss of function by evaluating the factors which compose function. He has devised a method of measuring the extent of disability in a given case."

This book was useful in 1936 in its first edition. It is far more useful in its fifth.

Unchanging—Ever New

HUMAN EMBRYOLOGY: BRADLEY M. PATTEN. The Blakiston Company, Inc., New York, 2nd Edition, 1953, pp. 798, $12.00.

Not always was Rudyard Kipling friendly to the medical profession. Was it not he who said:

"Wonderful little when all is said,
Wonderful little our fathers knew,
Half of their remedies cured you dead,
Most of their teaching was quite untrue."

If Kipling were alive today and could have read this book, he might have changed his tune and written a different poem about the "wonderful much"

that scientists, including physicians, have disclosed as undebatedly true.

Steadfastly this book review department cleaves to the policy that only rarely will any book be reviewed that lacks clear identification with occupational health. Yet on more than one occasion tribute has been paid to the admirable claim that knowledge for knowledge's sake makes every scientific book a part of occupational health. Withal no little task is imposed upon the reviewer to identify a textbook on human embryology foremostly designed for undergraduate students in the biologic sciences, with occupational health. No less, three appeals readily appear.

The first is on the nostalgic level. Every physician, from age 24 to 99, loves to relive his training years and the focus is apt to be either the dissection room or the laboratory of embryology, serving as a messenger from the past. The word is here brought that embryology still lives. The word "anlage" has not disappeared from the classroom, nor have other cherished words such as "maturation," or "blastula stages." All is well. Embryology survives.

A second appeal resides in the fact that in this topsy-turvy changing world there are a few things not subject to upset. Well it may be believed that scarcely has there been any departure in the embryologic processes that led to the first born on earth over those latest born. If we yearn for the unchanging, that yearning may be satisfied in the contemplation of embryologic processes even though man's knowledge of such processes, decade by decade, enormously has enlarged.

In the third place it may be observed that many physicians continually are disturbed by the fact that medicine is not an exact science and is more of an art. Perhaps it is true that one of the beneficences of medicine is that much of its good springs from its artistry. For those who have hope that in good time medicine will become a pure science, comfort may be found that in some divisions of medicine, or at least medical training, exactness does prevail and human embryology comes close to serving as the best example.

Industrial medicine, but more particularly industrial toxicology and industrial hygiene, has some possibility of attaining to the status of an exact science. Possibly such is not desirable but, if so, much may be gained by examining the exactness of human embryology in order that the accomplishment in that domain may guide to exactness in that other domain, occupational health.

Manifestly this type of review will prove offensive to those who will prepare for various periodicals more closely identified with biologic development whether for man or lower forms of life. Still the desire is to recognize and pay tribute to a superb text publication—"Human Embryology," prepared by its distinguished author, Bradley M. Patten.

Employer Medical Care

MANAGEMENT AND UNION HEALTH AND MEDICAL PROGRAMS: U.S. Department of Health, Education and Welfare, Publication No. 329, U.S. Government Printing Office, Washington, D.C., 1953, pp. 276, $1.00.

"In recent years the negotiation of many types of health and welfare programs in collective bargaining contracts has brought to the attention of the general public the interest of management and labor in the field of employee health and medical care. This interest has been regarded by the public as a new development in labor relations—an extension from the traditional concern of managements and their employees with wages and hours and working conditions.

"Close observers of the field of medical care as well as labor relations, however, have long been conscious that the interest of management and workers in health and medical care programs was not a new thing. Some companies and unions established programs of this type more than a hundred years before the surge of interest in voluntary health and welfare plans that came during World War II.

"This volume is an effort to trace the origin and growth of health and medical care programs under management or employee sponsorship and to describe selected programs. It is the third in a series of studies produced by the Public Health Service dealing with the broad area of health and medical services in industry."

Medicine versus Disease

MEDICAL RESEARCH MAY SAVE YOUR LIFE: GILBERT CANT. Public Affairs Pamphlet No. 201, Public Affairs Committee, New York, 1953, pp. 28, 25 cents.

If the state of medicine and the health of the people as of the year 1854 had continued to this year of 1954, many persons now reading this book review would not be reading it, since they would not be on earth because they never would have been born or would have died in infancy. The startling victories of medicine over disease most of which have been provided within the lifetime of the youngest adults now alive are leading to appalling potentialities. More than ever the world is threatened with over-population; it is a possibility that during the next 30 years there will be a doubling of its inhabitants.

It is frightening to contemplate a world occupied by five billion persons when here and now, with population near to half that number, starvation is rampant. This pamphlet foremostly is not concerned with world population, world economies, world food supplies, or starvation or birth control programs. Its message is of the remarkable accomplishments that have been brought about at the expenditure of about a third of a cent per day per capita in the United States. If only this tiny sum might be doubled so that, daily, two-thirds of a cent per capita were expended for health, the expectations are that even more notable banishment of disease may be expected. If we are going to have to live in an over-populated world more than ever this elbow rubbing population should be healthy. One-third of a cent more daily per person in the United States will go far toward this objective.

Right now this is the best known 25-cent buy of any printed word. Good for industrial physicians, all physicians, and every person in the country above the age of 10.

Mellon Institute

SCIENTIFIC RESEARCHES OF MELLON INSTITUTE, 1953-1954: Annual Report Series, No. 41. Mellon Institute, Pittsburgh, Pennsylvania, 1954, pp. 56, free.

The year's work in research at Mellon Institute with appraisal of present status of enterprise under way and a foretaste of things to come. In this the investigative work of the Industrial Hygiene Foundation appropriately is emphasized.

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Psittacosis (Ornithosis) as an Occupational Disease

KNOWN as an avian disease since 1880 but only as viral disease since 1930, psittacosis took its name from the technical term for the parrot family. That designation may have been inept since later it developed that almost all members of the bird family tested, proved to be susceptible as well as various of the mammalia, including man. Still it may be that the psittacine birds are the chief reservoir. Human cases are no rarity. As early as 1929-30 some 800 cases were diagnosed in 12 countries and perhaps even larger numbers were missed. Stringent public health regulations were promulgated but proved difficult to enforce. At all recent times there has been extensive illegal traffic over the Mexican border with these "feather backs,"—parakeets.

The clinical picture need not be presented here in pretentious extent. Sufficient it is to observe that foremostly psittacosis in the human is a viral pneumonia sometimes mistaken for influenza and otherwise sometimes resembling typhoid fever to the point of requiring serologic testing for differential diagnosis. Before the days of chemotherapy the mortality rate was high, and upward of 40%. Currently the death rate among those appropriately treated does not exceed 10%.

From the beginning, cases of this disease with infrequent deaths have arisen among bird dealers and breeders and among laboratory investigators. Such cases were of occupational origin, but as such attracted little attention save occasionally for compensation purposes. Now, and lately, human psittacosis emerges as a full blown occupational disease and in epidemic numbers. While all the requirements for the diagnosis of an occupational disease are met, still this disease may not be styled as "characteristic." In Texas, currently but with three earlier outbreaks, the disease has appeared in workers in the turkey packing houses. The disease is readily disseminated, since the dust from turkey feathers floating in the air may spread it. But there are other ways of distribution, including the possibility that the disease may pass from man to man without the turkey or other bird serving as a necessary intermediary. Animal inspection not always is effectual since birds without the disease may serve as carriers and thus defy any detection. In one recent week, 97 new cases were recognized, which figure establishes the disease as of no mean proportions. Why does Texas become the locus of this unwanted event? Surmise, and surmise only, suggests that the continual smuggling of parakeets across the border is linked with surreptitious storage on this side among flocks of turkeys. How far the spread from now on? Nobody knows. But, the potentialities for disaster for humans and turkeys are manifest. It has been said that day by day a new occupational disease comes to notice. If so, then for this day its new occupational affliction.

Horribile Dictu!

THERE IS considerable evidence that disodium calcium ethylenediamine tetraacetate also known as calcium EDTA or Versene is probably the best deleading agent yet evolved. Belknap and others have experimented with this chelating drug under various circumstances to a point that their results seemingly justify its use in certain types of lead intoxication.

It is necessary, however, to point out to all concerned that calcium EDTA should be used only

as a therapeutic agent. As yet there is no scientific evidence that it would serve efficiently as a preventive measure. Certain promoters of this drug already are suggesting that those exposed to lead be given daily oral calcium EDTA. It is also reported that one drug company intends to manufacture a skin cream containing this substance *(horribile dictu!)*. If such a preventive policy were adopted the accepted methods of maintaining good industrial hygiene would be ignored. This would be disastrous since there is no substitute for rigid hygiene in industry.

Those of us engaged in the field of occupational medicine should make this point quite clear to pharmaceutical houses, to the medical profession and to management. Depending upon a pill for prevention rather than upon the proved measures prescribed by our hygienists is to be deplored. Further, this warning should be proclaimed loudly, frequently and made conspicuous in all medical journals. —R. T. JOHNSTONE, M.D.

Telling the Worker

When it comes to mechanical and physical dangers at work, never has there been any reluctance on the part of management to ignore worker participation in protection. In all possible ways and continuously the worker has been reminded that steam burns and punch presses shear off fingers. As to those less obvious exposures leading to occupational diseases, those industrial plants with medical services, including industrial hygiene, are split into two divergent camps. Under one policy, the workers from the time of employment are informed that their work is dangerous unless protective measures always are effective. Where dangerous materials are in use or may arise, suitable placards provide warnings. Here may be observed such reminders as "Carbon Monoxide Area" or "Trichlorethylene Vapors Are Dangerous." This policy assumes that industrial workers are not neurotics and hypochondriacs and instead are intelligent enough to share in the perpetuation of protective measures. Faith in the integrity of operatives prompts the belief that if they are mentally equipped to perform an essential production task they likewise may understand that some activities and materials are dangerous unless safeguarded and that safeguards to be valuable consistently must be functioning in the best manner. Thus each workman becomes part of the protective program.

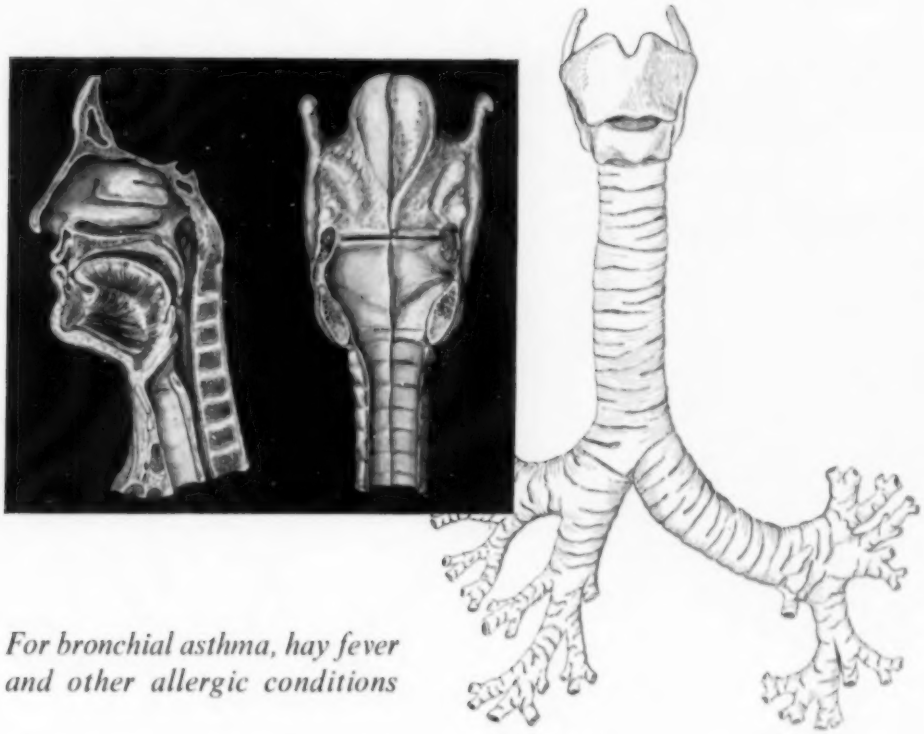
In the other camp the governing policy holds that in any sizeable work group at least a few are panicky, that some applicants will refuse employment in areas designated as dangerous, that organized effort may be made to demand higher rates of pay in the presence of occupational disease threats. Advocates of this policy contend that unwanted numbers of spurious claims arise attributing all manner of non-occupational affections to labeled exposures and indicate that physicians told of warning signs readily make diagnoses in keeping with worker apprehensions. Worker fears, it is asserted, lead to high accidents, demands for transfer, disturbing absenteeism. In some of these plants, dangerous chemicals are never labeled by true names but by code numbers. These plants operate on the theory that "What you don't know won't hurt you." This second policy group take the position that protection fully is a managerial function and assume final responsibility without taking the worker himself into any degree of protection partnership.

The matter is moot. All of the rightness is not on any one side. Each camp has its experience and its convictions. Under the varying circumstances of work it is possible that sometimes one practice is the only one that will work and for others just the opposite. Without careful exploration it appears that the two groups are of about equal size. Without espousing either camp, this Journal takes the unassailable position that the real need is to eliminate the exposure and to keep it eliminated. When that becomes an accomplished fact it makes no great difference whether the exposures have been labeled or workers warned. Then comes the pleasant opportunity to make fully clear to all workers, "No Dangerous Exposures Exist in this Department." That, provided it is true, and kept true.

Record Number

AN ALL-TIME record number of physicians—218,522—were licensed to practice medicine in the United States at the close of 1953, according to the fifty-second annual report on medical licensure of the American Medical Association's Council on Medical Education and Hospitals. Of this total, 156,333 were engaged in private practice; 6,677 were engaged in full-time research and teaching and were physicians employed by insurance companies, industries, and health departments; 29,161 were interns and residents in hospitals and those engaged in hospital administration; 9,311 were retired or not in practice; 17,040 were in government service. The data presented in the report showed that last year 7,276 physicians received their first license to practice medicine.

—*J. Michigan State M. S.*, June, 1954.



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News, Comment, Opinion

THE CHIEF occupational disease of dentists is nervous anxiety.
—WALTER WINCHELL.

Houston Conference

THE Seventh Annual Houston, Texas, Industrial Health Conference will be held at the Shamrock Hotel, Houston, September 23-25, 1954.

Kitty, Kitty

AN AWARD of almost $3,200 was made yesterday to Mrs. Catherine Hylander for permanent and temporary disability resulting from her being frightened by a mouse while at work.
—*Ann Arbor News*, June 30, 1954.

Passe

IT IS a number of years since the author has encountered the practice of having applicants strip in one big room and being examined en masse. He hopes never to encounter it again. It is an undignified procedure, and is not a very favorable introduction to an employer or his medical staff.
—From "Considerations Governing Factory First Aid," by CHRISTOPHER LEGGO, M.D., in *Pacific Factory*, June, 1954.

Paid Off

REGULAR physical examinations for personnel have paid off in a five-year program at General Petroleum. Since 1948, the incidence of disabling and fatal cardiovascular heart disease has decreased 15%, mortality from malignancies of internal organs in males 33%, disabling diseases of the digestive tract 20%. Cases of overweight are off 40%.
—*Business Week*, July 3, 1954.

Federal or State?

FEDERAL-state responsibilities in the field of health will be studied by a special committee now being formed by the Commission on Intergovernmental Relations. The 10-man group will include three Commission members. Formerly headed by Clarence Manion, the Commission now is under the direction of Meyer Kestnbaum, Chicago clothing manufacturer.
—*Ohio State Med. J.*, June, 1954.

Cheers

THE OLD LADY of Threadneedle Street can be very old-ladyish. A friend of mine was invited to take part in a Symposium in the United States, and, although his travelling expenses were being met, he naturally needed a few odd dollars for incidentals. He completed the necessary forms seeking permission to take some dollars with him and gave as the reason for his trip "To attend a Symposium." He received a strong negative from the Bank of England, and on making inquiries discovered that the word "symposium" was the stumbling-block. "Let's look it up in the dictionary," I suggested resourcefully. The first meaning given was "A drinking party."
—*West Virginia M.J.*, July, 1954, quoting *The Lancet*.

Competent Investigation

SAVINGS of millions of dollars could be effected in the United States each year if unexpected deaths were carefully investigated by a competent medical official, a University of Cincinnati Professor said not long ago. The dollar savings would result largely from the prevention of unnecessary litigation based on incomplete information, Dr. Frank R. Dutra, Associate Professor of Industrial and Forensic Pathology in the University's College of Medicine, pointed out. He said that prompt medical investigation of deaths would provide facts for the settling of workmen's compensation and insurance claims.
—*New York Herald Tribune*, June 17, 1954.

Naples, in September

THE ELEVENTH International Congress on Industrial Medicine will convene in Naples, September 13 to 19. Symposiums will be held on industrial medicine with particular reference to the problem of apprenticeship and on industrial absenteeism. Lectures will be delivered on the problem of the benzene substitution solvents in industrial medicine and on occupational risks of divers. The following papers have been scheduled: "Radioactive Isotopes"; "Toxicology of Plastic Substances in Relation to Industrial Hygiene"; "Physiology of Work"; and "Insecticides, Their Toxicology and Risks, Production and Uses." Inquiries should be addressed to the Secretary of the Congress, Instituto Medicina del

Founders of the counseling service to the medical profession, serving medicine with distinction over half a century.

POSITIONS WANTED

Medical Director: (253) Diplomate, American Board, Internal Medicine; FACP; Fully conversant every phase of large industrial medical program; active in National industrial medical affairs; past eight years, Medical Director, major company, 50,000 employees; seeks to direct large industrial medical program with headquarters in New York City; outstanding references.

Medical Director: (254) Well-qualified to initiate and develop industrial medical program, especially for executives; well-qualified in cardio-vascular diseases; general surgery; Diplomate, American Board of Internal Medicine; Graduate, Harvard. Medical several years, faculty member, university medical school; East or South; early 30's.

Medical Director: (255) Exceptionally well-qualified industrial hygiene; M.S., Public Health; Graduate, Jefferson Medical College; three years, industrial surgeon, (set up entire program), major steel company; four years, Chief Epidemiologist, large Public Health program; 10 years, Medical Director and Administrator, Preventive Medicine; important program. East, prefers Philadelphia area.

Medical Director: (256) Class "A" graduate; two years, county health officer; four years, successful private general practice; five years, staff physician, major company, light metal fabricators; past five years, Medical Director, Foundry Division; one of country's largest companies; well-qualified chest diseases; Seeks Directorship in corporation involving multiple plants; prefers Midwest or East. Middle 40's; FIMA.

General Surgeon: (257) Class "A" graduate; two years, Captain, M.C., U.S. Army; two years, successful private general practice; two years, industrial surgeon; major automobile manufacturer; three year residency, general and traumatic surgery, university hospital; past 12 months, private general and surgical practice; prefers industrial surgery; late 30's; prefers central or midwest.

Physician: (258) Primarily interested in administrative work in Aviation Medicine; years' residency, internal medicine; three months post-graduate work, aviation medicine; 18 months, Medical Officer, large Air Force Hospital; will consider industrial medicine on administrative level; any locality; age 26.

Staff Physician: (259) Finishing military tour of duty; well-qualified surgeon; three years, residency, pathology; several years, assistant medical director, life underwriting company; recommended as assistant to busy Medical Director; early 40's.

Staff Physician: (260) Class "A" graduate; four years, Major, M.C., U.S. Army; three years, staff physician; large plant, major company; seeks post leading to medical directorship; well-qualified clinically and administratively; reliable and cooperative man. early 30's.

POSITIONS OPEN

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Among the companies listing these worthwhile openings are the names of some of the largest industrial organizations in our country. Salaries range from $8,000 to $40,000.

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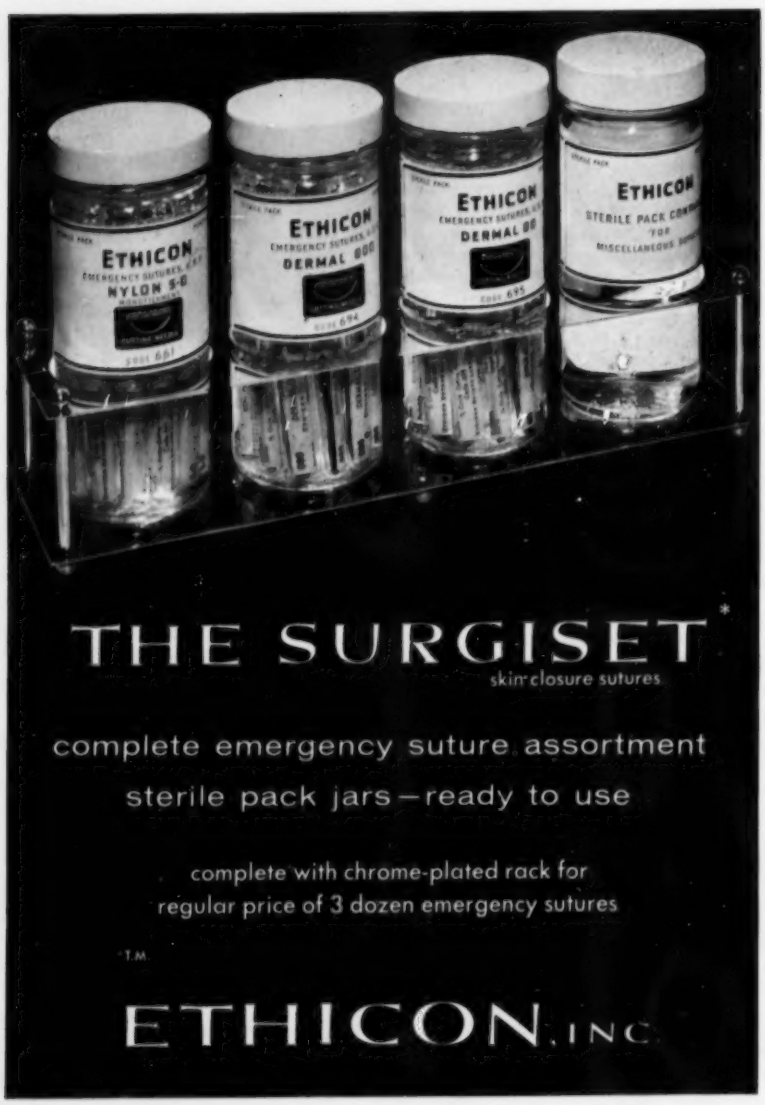
Lavoro, Universita Policlinico, Piazza Miraglia, Naples, Italy.
—*J.A.M.A.*, July 10, 1954.

Sue the Government

THERE is a new angle to Britain's socialized medicine scheme. Under the British health service, patients now have discovered they can sue the government if they do not get well. Under the legal aid scheme, which is a separate Socialist institution, they can even get the government to furnish them a free lawyer to handle their suit. Furthermore, if they win, the government pays off. If they lose, the court costs still have to be paid by the government. "So have a go. It's all on the welfare state," writes London correspondent Ernie Hill in the *Chicago Daily News*. He reports that a rash of lawsuits against hospitals under the National Health Service has broken out all over the place, with medical authorities estimating that some 200 suits for damages have been filed in the last three years. It would seem that there is never a dull moment in the welfare state. We wonder what happens to the doctor who fails to get the patient well.
—*J. Florida M.A.*, July, 1954.

Olivine

PNEUMOCONIOSIS caused by the inhalation of dusts is a major problem among workers in the mining, foundry, and other dusty industries. The principal cause of this condition has been long and well established as being due to the dusts from silica sands. Among the various substitutes that have been suggested to replace silica as a molding sand in the foundry industry and to help decrease the incidences of silicosis is an ortho-silicate compound called 'Olivine.' Olivine is magnesium-ortho-silicate that is composed of forsterite (Mg_2SiO_4) and fayalite (Fe_2SiO_4). It does not contain free silica. The state of Washington has a vast natural supply of olivine which occurs as rock or boulders in its natural state in the foothills of the Twin Sisters area of the Cascade range. Olivine is also located on Cypress Island in the San Juans. At the present time olivine sand is reported to be producing steel castings successfully in Norway. The general consensus is that the olivine used will not produce as good a surface as will silica for carbon steel, but is superior to silica for manganese steel. Manganese steel castings of excellent quality have been reported from these Norwegian foundries as well as the Electric Steel Foundry Company in Portland, Oregon. The University of Washington also has a pilot foundry in operation experimenting with olivine in which they have found olivine a suitable substitute for quartz sands now shipped from Belgium and Illinois. . . . Realizing the need for animal experimentation to confirm that olivine did not produce silicosis, experiments using rabbits were started in 1940 by K. J. Stenvik and Dr. Elstad in Norway, the results of which Stenvik reports in his article 'The Properties of Olivine and Its Uses for Refractories and Molding Sands,' (*J. Iron and Steel Inst.*, 162, 44-48, 1949). In England experiments with dust from Norwegian olivine were made by E. J. King and his co-workers, in 1943 (King, Rogers, Gilchrist, Goldschmidt, Nagelschmidt, 'The Effect of Olivine on Lungs of



Rats' [*J. Path. and Bact.*, 57:488-91, 1945]). These two series of experiments gave the following result: After 508 days' exposure to quartziferous dust, the rabbits showed the changes typical of silicosis, both in the lung tissue and in the adjacent bronchial glands, with development of nodules and an increase in the fibrillar connective tissue. In the rabbits exposed to similar amounts of dust from olivine rock and for the same periods as the rabbits mentioned above, there was only a foreign-body reaction, partly with giant cells, but there was no development of silicotic nodules or increase in the connective tissue. . . . Stenvik in his paper states that olivine dust appears to act without irritating the respiratory system into excretion through increased expectoration. The purifying process must therefore be internal, with phagocytes carrying the dust away and other organs excreting it in a dissolved or unchanged form. He furthermore states that it may be inferred that inhalation of dust particles from olivine rock will give very slight or no risk of silicosis. With the application of olivine as a molding sand, the danger connected with free silica is removed, and it may be a means of eliminating the silicosis hazard in the foundry industry."

—Condensed from "Olivine As A Substitute for Molding Sands," by VAUGHN R. RAMSON, in *Occupational Health Newsletter*, University of Washington, May, 1954.

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Census

ON THE basis that in every highly industrialized community, such as Allegheny County, every practicing physician is at least indirectly concerned with industrial health, if only in consideration of the influence of the work environment on his patients, the Committee on Industrial Health and Hygiene of the Allegheny County Medical Society believes that it would be desirable to know exactly which members of the society are now practicing occupational medicine in any of its aspects. The Committee believes with the Council on Industrial Health of the American Medical Association and the Commission on Industrial Health and Hygiene of the Medical Society of the State of Pennsylvania that the much needed extension of industrial medical service to small plants will require the active participation of many general practitioners. Therefore, the County Society Committee has sought the cooperation of the membership in answering the questions on a return postal card.

—*Pennsylvania Med. J.*, June, 1954.

Faith

WHAT is faith? I would say it is an individual's belief in his alliance with a power which he

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experiences as a higher one inasmuch as he cannot grasp it by means of intellect and logic. We all know the power of faith, how it can enable individuals to carry on with a struggle they would otherwise fear to face. It would mean blindness to the facts of life not to admit the important role that faith usually plays in all struggles for survival, including, in a foremost place, the struggle of the ailing organism for the restoration of health. The power with which the faithful individual believes to be allied in his struggles is often considered to be a frankly supernatural one, but this is by no means always true.

—From "Realism and Unrealism in Psychotherapy," by GERHARD HOFFMANN, M.D., in *Ohio State Med. J.*, June, 1954.

Long Fringe

FOR TOO LONG employers have hidden the costs of fringe benefits. We have been willing to bargain these items, because they don't show up in the pay checks. We have now arrived at the time when our fringe benefits, which are inflexible, come to represent the amazing factor of $.35 an hour or more. In fact, in a study by the Chamber of Commerce it is shown that in some isolated cases fringe benefits went as high as $.75 an hour. A large percentage of the companies studied by the Chamber of Commerce had costs well in excess of $.35 an hour. At General Electric, for 1952 our employee benefits only—these do not include all fringe benefits—totaled $160 million, 30% more than we spent for plant and equipment in the same year, and an average cash outlay of $734 per employee. Similar figures probably apply in many other companies. It is vitally important that we establish with this money a sound program—a program that will be of maximum benefit to the employee and that will reflect maximum benefits to the company and to the economy.

—From "Benefit Plans—A Shotgun Wedding?" by E. S. WILLIS, in *Office Executive*, June, 1954.

Useful Citizens

PHYSICIANS who take part in civic activities often may wonder whether the time they spend is worth the effort. If so, they should dismiss that question from their minds promptly. They not only are doing themselves and the medical profession a real service, but more important yet, they are making vital contributions to their community and fellow citizens. If you don't believe this, read the following editorial from the *Akron Beacon-Journal* which proves the point: "A prescription for his fellow doctors was given by DR. PAUL A. DAVIS, of Akron, President of the Ohio Medical Association, at a convention in Columbus this week. Stop being doctors 24 hours a day and take part in other activities, was DR. DAVIS' advice to his colleagues. Judging from the doctors we know, the exceptions to DR. DAVIS' rule prove his point. What DR. DAVIS had in mind was that when doctors take a hand in community affairs they build better relations between the public and their profession. We'll

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[1]*Jl. Inv. Derm.*, 17:125 (Sept., 1951)

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- Pruritus vulvae from discharge
- Etc.

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go along with that. However, what we meant when we said the exceptions to his rule prove his point is that the Akron doctors who DO participate in civic affairs are among the city's most useful citizens. As members of social agency boards and committees and as officers in civic organizations they typically contribute keen judgment and progressive ideas. In the process of serving the community they also build good will for their profession, but that doesn't appear to be their primary goal." In our opinion, physicians who sense their obligation to their community and do something about it are, as the *Beacon-Journal* says, "most useful citizens." It would be gratifying if more physicians would follow suit.

—*Ohio State Med. J.*, June, 1954.

Lo, the Poor Executive

LOOKING for a reason to be unsuccessful? Here's one that's tailor-made. The big jobs, in factories at least, aren't healthful. Industrial executives as a class tend to have poor hearing, high blood pressure, and heart and lung abnormalities. They usually are too fat, and they die before they should. Authority for these interesting statements is *Factory*, McGraw-Hill's management and maintenance magazine. Basis for the opinion is a survey that was conducted by Life Extension Examiners. About the only encouraging note that the Paul Prys had for industry's brass is that they have good eyesight. It is not made

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POSITIONS WANTED

Medical Director: (KS-654) Age 45. M.D. degree, Northwestern University Medical School; Fellowship in surgery, Northwestern University; Associate in surgery, Cook County Hospital. Ten years administrative experience in the field of industrial medicine. Has organized and directed comprehensive medical programs.

Medical Director: (CM-654) Age 48. M.D. degree, Jefferson Medical College; Master of Public Health, Columbia University. Has specialized in Industrial Health Administration; eligible for American Board of Preventive Medicine. Twenty years experience.

Staff Physician: (BM-654) Age 28. M.D. degree, Louisiana State University Medical School. One year general practice residency. Excellent references. Class IV. Prefers South or Southeast.

Industrial Surgeon: (HPM-654) Age 45. M.D. degree, University of Michigan Medical School. Certified in surgery, 1946.

Staff Physician: (EH-654) Age 32. Has passed Part I American Board of Physical Medicine and Rehabilitation; M.S. in Occupational Medicine; graduated Master of Public Health 1952. Will go anywhere.

Industrial Nurse: (MA-654) Age 37. Ten years experience in industry. Good administrative background. Available now, will go anywhere.

clear whether this is a cause or result of their status. Overweight, in the opinion of the analysts, is one of the most serious problems faced by an executive because it may lead to high blood pressure and heart disease, if the condition isn't corrected. The survey showed that about 20% of all types of industrial captains are carrying around more flesh than they should. The incidence of high blood pressure varies with the job and company. Plant executives, as distinguished from office or sales force men, were much more susceptible—20% as compared with 12%. The survey findings were about the same for heart and lung abnormalities; the percentage among production men was 6.2, compared with 3.4 for the policymakers. "Experts believe," the surveyors said, "the higher blood pressure is attributable to greater nervous tension and job strain which factory executives endure, and that lung and heart abnormalities, while harder to explain, may be due to factory atmospheric conditions and hypertension, respectively."

—WILLIAM LAWTON, in *Binghampton, New York, Press*, June 17, 1954.

Protect against Propaganda

WITH increasing frequency one hears doctors—especially family doctors—protesting against the flow of articles and stories in magazines and newspapers warning readers of the many hazards to health that must be faced daily. Much of the advertising material that issues from the television and radio as well as that found in publications adds to the fear inspired by such propaganda. These doctors will be in full sympathy with a letter written for the *British Medical Journal* of April 17 by Dr. Paul R. Saville, of London, which is apt enough to quote almost in full: Half the patients I have ever treated smoke like chimneys. Whatever else happens to them, they don't die of cancer of the mouth. What are we coming to? We mustn't smoke for fear of getting respiratory cancer of some sort. The stuff we inhale makes breathing a dangerous procedure. The poisons we consume in our food are sure to kill us soon, and of course we may even die in our sleep. In addition, the mental state induced by these hazards is sure to hasten the inevitable attack of coronary thrombosis or peptic ulcer. It seems that the way of living to a reasonable old age is to become a High Court judge, diet rigidly, give up smoking, and move to a rural area (there would also be less chance of getting run over on a farm). Isn't it about time that we gave both our patients and ourselves a proper sense of proportion before we develop into a nation of anxious hypochondriacs? We haven't yet caught up on our American friends (if their magazine advertisements are anything to go by), but we'd better do something about it soon. Let us help our patients to live—and die—without the dread picture of disease forever in their thought; and let us refrain from giving the lay press so much ammunition to use in their quasi-medical fear-stimulating extracts.

—CHARLES WELLS.

—Editorial, in *North Carolina Med. J.*, June, 1954.

In the Middle

THE industrial physician is likely to encounter opposition both from workers and from management. Cases are described in which the principle of seniority and other union practices have interfered with the obvious duty of the physician. On the other hand, management may be either over-zealous to placate unions, or may demand ruling in the company's favor. It is difficult to avoid being drawn into company-labor disputes, but tact and consideration help to avoid such situations. Regarding relations with management, the industrial physician should get a clear, formal understanding about his duties, his position in the company's hierarchy, and the facilities provided, before he accepts a job. He should make sure that management understands his ethical responsibilities. He should assess management's real feelings about the objective of the plant's medical program. He should make a thorough tour of the plant and pay particular attention to the attitude of employees, their working conditions, and the medical facilities. His relations with the workers will be helped if he wins the cooperation of their leaders, shows a sympathetic interest in their jobs and personal problems, lets them know that he will respect their privacy, avoids using too much medical terminology, becomes familiar with provisions in union contracts and company personnel policies that relate to

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medical matters, and, above all, treats industrial patients as human beings.

—Review in *Industrial Hygiene Digest*, June, 1954, of "Industrial Doctor: The Man in the Middle," by W. CROATMAN, in *Medical Economics*, April, 1954.

Dr. Cheney Graduates

VOLNEY S. CHENEY, M.D., long time Medical Director of Armour and Company, and, since his retirement, residing in Las Vegas, New Mexico, where he has the full-time job of looking after the health of the community's younger citizens, in June this year attended the commencement at Washburn University of Topeka, Kansas, and there, 62 years after leaving Washburn Academy, he was given his high school diploma. DR. CHENEY explained that when he was attending Washburn Academy, at the high school level, he broke his back shortly before graduation time. He was unable to attend commencement exercises and receive his diploma. His credits, however, were accepted when he entered college.

Meeting at Ottawa

THE INDUSTRIAL MEDICAL ASSOCIATION of the Province of Quebec and the Section of Industrial Medicine of the Ontario Medical Association will hold a combined meeting at Ottawa Civic Hospital, September 23-25, 1954. Following registration and an address of welcome on Thursday, September 23, DR. GEORGE WILLIAMSON, Associate in Dermatology, Queen's University, Otta-

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wa Division, will speak on "Diagnosis and Treatment of Industrial Dermatitis." He will be followed by DR. ROBERT STARRS, Associate in Medicine, Queen's University, Ottawa Division, who will discuss "Evaluation of Periodic Health Examinations." The last paper of the morning session will be given by DR. KARL STERN, Professor of Psychiatry, University of Ottawa; its title, "Psychiatric Aspects of Industrial Medicine." The Thursday afternoon session will be as follows: "Resistant Staphylococcal Infections."—DR. E. T. BYNOE, Bacteriologist-in-Charge, Laboratory of Hygiene, Department of National Health and Welfare, Ottawa; "Medico-Legal Pitfalls"—DR. T. L. FISHER, Physician-in-Chief, Ottawa Civic Hospital, Assistant Professor of Medicine, Queen's University, Secretary-Treasurer, Canadian Medical Protective Association; "The Diabetic Employee"—DR. J. B. R. MCKENDRY, Associate in Medicine, Queen's University, Ottawa Division; "Diagnosis and Treatment of External Diseases of the Eye"—DR. R. E. SMART, Associate in Ophthalmology, Queen's University, Ottawa Division. The Annual Dinner will be held at 8:00 P.M. at the Chateau Laurier Hotel, with DR. H. M. HARRISON, Chairman, Section of Industrial Medicine, Ontario Medical Association, presiding. The sessions on Friday, September 24, will have the following program: "Foot Problems in Industrial Workers"—DR. F. P. DEWAR, Assistant Professor of Surgery, University of Toronto; "The Problem of Industrial Workers with Back Pain"—DR. IAN MCNAB, Clinical Teacher in Surgery, University of Toronto; "Rheumatoid Arthritis and Spondylitis"—DR. WALLACE GRAHAM, Associate Professor of Medicine, University of Toronto; "Painful Shoulder Disabilities"—DR. GARFIELD KELLY Associate Professor of Medicine, Queen's University, Kingston; "Compensation Aspects of Rheumatic Disorders in Industry"—DR. E. C. STEELE, Commissioner, Workmen's Compensation Board; and "Psychological Aspects of Rehabilitation of the Physically Handicapped"—DR. M. GRAYSON, Rehabilitation Unit, Bellevue Medical Centre, New York, New York. On Saturday—under the Chairmanship of DR. W. F. PRENDERGAST, Medical Director, Frigidaire Products of Canada, Ltd.—PROFESSOR J. WYLLIE, Queen's

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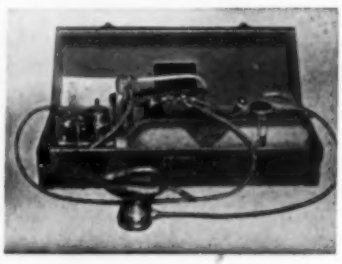

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University, Kinston, Ontario, will talk on "Urinary Porphyrins in Lead Absorption and Lead Intoxication"; DR. JOHN TWEDDELL, Queen's University, on "Special Problems in the Female Worker"; and DR. JAMES MELVIN, Queen's University, on "Early Treatment of Common Injuries."

Pacific Northwest Conference

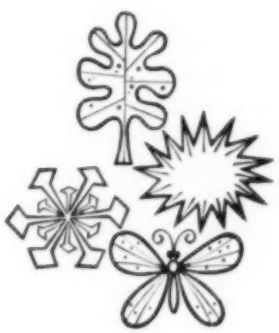
THE PORTLAND Chamber of Commerce, in cooperation with local industries and medical societies, is sponsoring the Pacific Northwest Industrial Health Conference on September 20 and 21 at the Multonomah Hotel in Portland, Oregon. This will be the first industrial health conference to be held in this area. It was inspired by the success of similar conferences held in Houston, Texas, and St. Paul, Minnesota, which have mushroomed into the most important industrial relations conferences of their respective areas. A partial list of the speakers and their subjects which will be presented at the Portland Conference are as follows: "Engineering (or Environmental) Aspects of an Industrial Health Program," by WILLIAM R. BRADLEY, Chief Industrial Hygienist, American Cyanamid Company, New York City; "Goals and Benefits of an Industrial Health Program as Seen By Management," by L. E. NEWMAN, Manager, Health and Safety Service Department, General Electric Company, New York City; "Accomplishments in Industrial Health in the Pacific Northwest," by HAROLD M. ERICKSON, M.D., Oregon State Board of Health, Portland, and JOHN KAHL, M.D., Acting Director, Washington Department of Health, Seattle; "Health Programs in the Wood Industry," by ROY A. DINGMAN, Director of Industrial Relations, Weyerhaeuser Timber, Tacoma, Washington; "Health Programs in the Metal Industry," by DUDLEY A. IRWIN, M.D., Medical Director, Aluminum Company of America, Pittsburgh; "How Industrial Health Fits Into the Community," by WILLIAM D. NORWOOD, M.D., Medical Director, Hanford Project, Richland, Washington; "Role of Plant Medical Department," by EDWARD P. LUONGO, M.D., Medical Director, General Petroleum Corporation, Los Angeles; "The Health of Management Personnel," by GEORGE SAUNDERS, M.D., Medical Director, Socony-Vacuum Oil Company, New York City.

Accident Boards Meet

THE International Association of Industrial Accident Boards and Commissions will hold its next annual convention at the Chateau Frontenac, Quebec, Canada, October 3-7, 1954. As has been the custom in recent years, a large part of the program will be devoted to the medical problems of workmen's compensation, although legislation and other fields of compensation will be considered.

Hawaii Hears

PLANTATION HEALTH, July 1954, publication of the Hawaiian Sugar Planters Association, is devoted to an excellently written account by DR. NILS P. LARSON of the IMA Annual Meeting. DR. LARSON was the recipient of the William S. Knudsen Award, 1953-54.



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RIASOL is supplied in 4 and 8 fld. oz. bottles at pharmacies or direct.

* A statistical study of 231 cases of psoriasis reported by Lane and Crawford in the *Archives of Dermatology and Syphilology* 35:1051, 1937.

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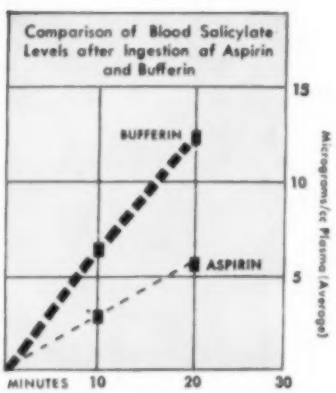

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REFERENCES: 1. Effect of Buffering Agents on Absorption of Acetylsalicylic Acid. J. Am. Pharm. Assoc., Sc. Ed. 39:21, Jan. 1950. 2. Gastric Tolerance for Aspirin and Buffered Aspirin. Ind. Med. 20:480, Oct. 1951.

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